

# Big Bear Lake Bridge Replacement Project



## Draft EIS/EIR and Draft Section 4(f) Evaluation

This project is located in the San Bernardino National Forest near the city of Big Bear Lake at the west end of Big Bear Lake at the junction of State Routes 18 and 38. The project is located in Township 2 North, Range 1 West, Section 22 San Bernardino Base and Meridian.

08-Sbd-18-71.1/71.9  
(PM 44.2/44.7)  
EA 22700

**January 2006**



## **General Information About This Document**

### ***What's in this document?***

This document is a Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R), which examines the potential environmental impacts of alternatives for the proposed Big Bear Lake Bridge replacement project located in San Bernardino County, California. The project proposes to build a new bridge, realign the approach roadways, add an additional lane for traffic storage on the bridge and signalize the intersection of State Routes 18 and 38 to improve intersection channelization. Subsequent to completing the new bridge the existing bridge will be removed. This document describes why the project is being proposed, alternative methods for constructing the project, the existing environment that could be affected by the project, and potential impacts for each of the alternatives.

### ***What should you do?***

- Please read this DEIS/R.
- We welcome your comments. If you have any concerns regarding the proposed project, please attend the Public Hearing and/or send your written comments via regular mail to Caltrans, Attn: Boniface Udotor, Office Chief Environmental Studies A, 464 West Fourth Street, MS 823, San Bernardino, CA 92401, or via email to [Boniface.Udotor@dot.ca.gov](mailto:Boniface.Udotor@dot.ca.gov).
- Submit comments by: April 10, 2006.

### ***What happens after this?***

After comments are received from the public and reviewing agencies, the lead agencies (the Federal Highway Administration and California Department of Transportation) will respond to the comments on this DEIS/R and publish the responses and any associated revisions to the document in a Final Environmental Impact Statement/Report (FEIS/R) and circulate to the public and reviewing agencies. Subsequent to the circulation of the FEIS/R, the lead agencies may 1) give environmental approval to the proposed project, 2) undertake additional environmental studies, or 3) abandon the project. If the project is given environmental approval and funding is appropriated, the Department could then design and construct all or part of the project.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Boniface Udotor, Office Chief Environmental Studies A, 464 West Fourth Street, MS 823, San Bernardino CA, 92401; (909) 388-1387 Voice, or use the California Relay Service TTY number, 1(800) 735-2929.



**Big Bear Lake Bridge Replacement Project**  
Near Big Bear Lake on State Route 18 from Kilopost 71.1/71.9 (PM 44.2/44.7)  
In San Bernardino County, California

**DRAFT ENVIRONMENTAL IMPACT STATEMENT/REPORT  
and SECTION 4(f) EVALUATION**

Submitted Pursuant to: Division 13, Public Resources Code – California Environmental Quality Act  
42 USC 4332(2)(c) – National Environmental Policy Act and  
49 USC 303-Department of Transportation Act

U.S. DEPARTMENT OF TRANSPORTATION  
Federal Highway Administration, and  
THE STATE OF CALIFORNIA  
Department of Transportation

COOPERATING AGENCIES

U.S. Army Corps of Engineers  
U.S. Fish and Wildlife Service  
U.S. Forest Service

Responsible Agencies

Regional Water Quality Control Board  
State Office of Historic Preservation  
California Transportation Commission  
California Department of Fish and Game

12/27/05  
Date of Approval

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1/31/06  
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Abstract

The project proposes to replace the existing two-lane bridge (Big Bear Lake Bridge, Bridge #54-0310), realign and widen the approach roadways to accommodate the new three-lane bridge and bridge location, signalize the intersection of State Routes 18 and 38 and remove the existing bridge. The proposed project is to replace the existing Big Bear Lake Bridge with a structurally sound and operationally efficient crossing of Big Bear Lake/Bear Creek. The new bridge would be constructed at a location that would allow the Big Bear Municipal Water District to complete spillway improvements to the existing dam to prevent lakeshore flooding. There are two build alternatives and the No Action/No Build Alternative. The project cost is estimated at \$19-30 million. The proposed project could impact: biological resources, including other Waters of the United States, threatened and endangered species, historic resources, water quality, and visual resources. Additionally, cumulative impacts could occur to the bald eagle and visual resources. Mitigation is being proposed to reduce potential impacts. Comments on this document are due by April 10, 2006 and should be sent to Boniface Udotor at the above address.



## Summary

This Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/R) is written to fulfill the requirements of both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). For the most part, the Environmental Impact Report (EIR) process under CEQA is similar to the Environmental Impact Statement (EIS) process under NEPA, but with some key differences. The most important difference is in the assessment of significance. Under NEPA, significance is used to determine whether an EIS, or some lower level of documentation, will be required. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once it is determined that impacts are significant, an EIS is prepared to disclose the project impacts to the public for comment and consideration. NEPA does not require that a determination of significant impacts be stated in the EIS; however, CEQA requires a significance determination in an EIR. This DEIS/R is based on detailed technical studies for the purpose of informing the public and decision-makers about the potential environmental and socioeconomic effects of the proposed project and presents reasonable alternatives to avoid or minimize adverse/significant impacts.

The following summary identifies major items of importance to decision-makers regarding the proposed project. Detailed project information is presented in the body of the document.

### S.1 Proposed Action

The Federal Highway Administration (FHWA) and the California Department of Transportation (Department) are proposing to build a new bridge and remove the existing bridge, currently located on top of the Big Bear Dam, one mile west of the city of Big Bear Lake in San Bernardino County (see Figure 1-1, Site Location Map). The proposed project limits are on State Route 18 (SR-18) from Kilopost (KP) 71.1 to 71.9 (Postmile [PM] 44.2 to 44.7). The purpose of the proposed project is to provide structurally sound and operationally efficient access across Bear Creek Canyon or Big Bear Lake as well as enable the Big Bear Municipal Water District (BBMWD) to complete their planned spillway and outlet works improvements. Removal of the existing bridge from the top of the dam would facilitate the planned BBMWD spillway and outlet works improvements. The project would also enhance safety by replacing the deteriorating and functionally obsolete structure, realigning the approach roadways and signaling the intersection of SR-18 and SR-38.

Additionally, the Department has determined that a third lane for traffic storage at the proposed signal is required for all alternatives to improve traffic channelization at SR 18/38 intersection.

## S.2 Major Actions Proposed by Others

**Bark Beetle Tree Eradication Project** (U.S. Forest Service, San Bernardino County, State of California)– Many trees on the San Bernardino National Forest are dead or dying due to a 4-year drought. Trees are weak and susceptible to beetle infestation because of the lack of water. Thinning (logging) is occurring on both private property and San Bernardino National Forest land. Thinning of the trees will improve the forest health and reduce the fire hazard to the local communities by removing large, dense stands of dead or dying trees.

**Forest Health Projects** (U.S. Forest Service) - The main objective of these projects is to increase the health of the forest. The work would include the thinning of smaller green trees and the removal of most dead and/or dying trees. Shaded fuelbreaks would also be created in most of the projects. The six projects currently under review, include:

- Valley of Enchantment Forest Health and Shaded Fuelbreak Project – Overly dense and dead/dying vegetation along the boundary between private land and National Forest lands in the Crestline/Cedar Pines Park area would be removed.
- Rim Shaded Fuelbreak and Forest Health Project – Overly dense and dead/dying vegetation along private land and National Forest lands boundary in the Lake Arrowhead/Twin Peaks/Crestline areas would be removed.
- Running Springs Shaded Fuelbreak and Small Fuels Reduction Project – In areas accessible by road, overly dense and dead/dying vegetation near Running Springs would be removed. Small trees and shrubs would be cut, piled and burned (when weather conditions permit) in areas not accessible by roads.
- Snow Summit / Bear Mountain Forest Health Project – Most dead and/or dying trees would be removed from National Forest lands at the Snow Summit and Bear Mountain Resorts to reduce fire danger. Thinning of generally smaller green trees in the tree islands would also be done to improve forest health.
- Skyline Shaded Fuelbreak Project – Overly dense vegetation, selected shrubs and generally smaller trees along Forest system road 2N10, south of Big Bear Lake, would be removed.

- South Big Bear Shaded Fuelbreak Project –Overly dense and dead/dying vegetation along the private land boundary up to 800 feet into National Forest lands on the south side of Big Bear Valley would be removed to create a community protection zone.

**Marina Points Development** (San Bernardino County)– The project is located on the north shore of Big Bear Lake near the community of Fawnskin. San Bernardino County approved the project in 1991. The proposed project is for 135 condominiums and a marina for approximately 175 boats. In May 2004, Friends of Fawnskin and the Center for Biological Diversity jointly sued for two preliminary injunctions to prevent the development company and its partners from working on the Marina Point project until a lawsuit in the San Bernardino Superior Court is settled. An injunction was issued which requires the developer to cease any activity at Marina Point that involves grading, dredging or soil disturbance, or any destruction or removal of existing features on the site, including live trees.

**Moon Camp Development** (San Bernardino County) - The proposed Moon Camp Tentative Tract #16136 Residential Subdivision (“Moon Camp”) encompasses 62.43 acres along the northwest shore of Big Bear Lake, in the community of Fawnskin, County of San Bernardino. The Big Bear Lake area serves primarily as a destination resort community and many of the residences are second homes. As many as 50,000 people visit the area on peak holiday weekends. The north shore area is less populated than the south shore and most visitors utilize the south shore commercial and recreational amenities such as ski areas, restaurants, and hotel facilities. The Moon Camp Development is located adjacent to the northwest shore of Big Bear Lake, in the relatively undeveloped eastern portion of Fawnskin.

### S.3 Project Alternatives

An alternatives analysis was prepared pursuant to the requirements of both NEPA and CEQA. While five alternatives were examined, this analysis resulted in two build alternatives (Alternatives 4 and 5), and the No Action/No Build alternative (Alternative 1) being carried forward for consideration and detailed analysis within this document.

Alternatives 2 and 3 were eliminated from further consideration and analysis due to their anticipated substantial impacts to properties eligible for listing on the National Register of Historic Places under Section 106 of the National Historic Preservation

Act, greater impact areas, and their associated biological and visual impacts. Alternative 2 would have required construction of side hill viaducts and reconstruction of the existing roadway for approximately one mile in all directions to meet the new bridge elevation. This would have resulted in greater impacts to adjacent resources. Alternative 3 would have required the removal/relocation of the Dam Keeper's House and would have bisected the Dam Keeper's Property. Additionally, the size of the cut required for Alternative 3 would have resulted in a much larger impact area, with greater impacts to adjacent resources. These alternatives are addressed in greater detail in Chapter 2, Section 2.3 "Alternatives Considered and Withdrawn."

Build alternatives still under consideration for the proposed project include the following:

- Alternative 4 – New Bridge Across Big Bear Lake (see Figure 2-2); and
- Alternative 5 – New Bridge Across Bear Canyon/Bear Creek (see Figure 2-3).

Both alternatives also include realignment and widening of the bridge and approach roadways, signalization of the intersection of State Routes 18 and 38, and removal of the existing bridge subsequent to construction of the new bridge.

NEPA and CEQA also require analysis of a No Action/No Build Alternative (see Alternative 1 - Figure 2-1). The No Action/No Build Alternative entails no improvements to the Big Bear Lake Bridge on SR-18. The existing bridge (bridge # 54-0310) was built in 1924. Minor improvements were made to the roadway approaches in the 1960's and 1970's; however, the existing bridge is not wide enough to accommodate multiple trucks at the same time (see photos in Appendix A). Additionally, the bridge structure has degraded to the point where reinforcing bar is visible and requires yearly maintenance. With the No Action/No Build Alternative, maintenance of the structurally degraded and functionally obsolete bridge would continue, as would the potential for lakeshore flooding associated with postponing the BBMWD's spillway improvements. The No Action/No Build Alternative would not include curve realignment, approach roadway modification, intersection signalization or removal of the existing bridge.

## S.4 Potential Impacts

Potential impacts identified will be avoided and minimized to the maximum extent practicable. If after minimization measures have been incorporated and impacts could still be potentially adverse, compensation will be provided to further reduce impacts to the maximum extent practicable. The adverse effect on the Big Bear Southwest Shore Historic District and the Dam Keeper's Property would be minimized and the details of the mitigation worked out through further coordination with the Advisory Council on Historic Preservation and the State Historic Preservation Office. The Mitigation will be finalized in a Section 106 Memorandum of Agreement (MOA) between Federal Highway Administration, U.S. Forest Service (USFS), the Department, the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP). The MOA will be completed after selection of a preferred alternative. Visual impacts would be mitigated to the maximum extent practicable through implementation of the visual mitigation, revegetation, slope contouring, and context sensitive design of the structure and appurtenances (i.e. guardrail, signs, traffic lights, etc.).



## Summary of Potential Impacts, Minimization, and Compensation by Alternative<sup>1</sup>

Potential Impacts		Alternative 4 Across Lake	Alternative 5 Across Canyon	No Action/ No Build	Avoidance, Minimization and Compensation Measures
Consistency with County, City and Forest Service Planning Documents		Yes	Yes	Yes	None Required
Traffic and Circulation		Construction impacts that may result in construction detours, delays, and increased truck traffic during construction. Project would result in permanent beneficial impact	Construction impacts that may result in construction detours, delays, and increased truck traffic during construction. Project would result in permanent beneficial impact	Continued deterioration of intersection operations	Traffic management plan, construction staging, regional and local public relations campaign
Water Quality		Potential Construction Impacts	Potential Construction Impacts	No Impact	Construction Measures (BMPs and Detention Basins) Permitting Requirements (401, 404, NPDES, SPPP)
Air Quality		Construction Impacts	Construction Impacts	No Impact	Construction Measures and Best Available Control Measures
Hazardous Waste Sites		None	None	NA	None Required
Noise: # of receptors $\geq$ Leq 67 dBA		0	0	0	None Required. No Substantial Increase
Total Jurisdictional Wetlands Area (Hectare/Acre)		0	0	None	None
Total Jurisdictional Waters Area (Hectare/Acres)		0.003 / 0.007	0.0/0.0	None	None
Floodplain Encroachment		Transverse, Not significant under 23 CFR 650.105(q)	No Encroachment	None	None Required
Visual		Adverse/Substantial/ Significant Impacts Subsequent to Mitigation	Adverse/Substantial/ Significant Impacts Subsequent to Mitigation	No Impact	Revegetation, slope contouring and context sensitive design for structures and appurtenances.
Cultural		Adverse Effect on two historic properties due to visual intrusion of new structure	Adverse Effect on two historic properties due to visual intrusion of new structure	No Impact	Implement visual mitigation, coordinate with SHPO and ACHP, execute 106 MOA with ACHP.
Growth Inducing		No Impact	No Impact	No Impact	None Required
4(f) Impacts	Direct Permanent (Hectares/Acres)	SSHD, Big Bear Lake Shoreline 0.19 / 0.47	DKP, SSHD, Big Bear Lake Shoreline 0.15 / 0.37	None	See USFS recommendations in Attachment A of 4 (f) analysis (Appendix F)
	Direct Temporary (Hectares/Acres)	Big Bear Lake and Shoreline, and SSHD 0.99 / 2.5	Big Bear Lake and Shoreline, and SSHD 0.4 / 1.0		
Biological Resources	So. Rubber Boa Hectares/Acres	0.06 / 0.15	0.2 / 0.5	None	Replacement of Habitat by acquisition at a ratio of 3 to 1
	Bald Eagle	4 perch trees	11 perch trees	None	Perch tree creation at a ratio of 2 to 1

<sup>1</sup> Mitigation and compensation measures may change subsequent to completion of the BO and Section 106 MOA and permitting requirements.

## S.5 Issues to be Resolved

Issues to be resolved before implementation of the proposed project are listed below. The impacts associated with the proposed project are discussed in detail in Chapter 3.

- Identification of a Preferred Alternative;
- Final Biological Resource Mitigation (pending consultation with resource and permitting agencies, and selection of a Preferred Alternative);
- Section 106 MOA for cultural resource mitigation (pending consultation with SHPO, USFS, and ACHP, and selection of a preferred alternative); and
- Concurrence from USFS regarding impacts and mitigations proposed on USFS lands

## S.6 Areas of Controversy

- Public comments indicated support for the project; however there is public concern regarding alternatives that would change the character and/or setting of the proposed project area. The Department has considered all public comments received throughout the project development process. Both of the proposed build alternatives within this DEIS/R have been modified to minimize impacts to sensitive resources and the project setting due to comments from the public participation process. The Department will continue to address the public's comments and concerns throughout the environmental process and through project completion. Chapter 6 summarizes comments received during the scoping and planning process and where they are addressed within the document.

## S.7 Permits and Approvals

The following permits and/or approvals would be required prior to implementation of the proposed project:

- Endangered Species Act – Section 7 consultation for Federally-listed threatened and endangered species with U.S. Fish and Wildlife Service (USFWS) resulting in a Not Likely to Adversely Affect Concurrence or Biological Opinion;

- California Endangered Species Act – Section 2081 consultation for State-listed threatened and endangered species with California Department of Fish and Game (CDFG);
- Streambed Alteration Agreement (Section 1602 [formally section 1601] of the Fish and Game Code) from CDFG;
- Clean Water Act – Section 404 Nationwide Permit from Army Corps of Engineers (ACOE);
- Section 401 certification/waiver from Santa Ana Regional Water Quality Control Board;
- Transportation and construction easements from USFS; and
- MOA between FHWA, SHPO, ACHP and USFS for mitigation of impacts resulting from the Section 106 Finding of Adverse Effect to the Big Bear Lake Southwest Shore Historic District and the Dam Keeper's Property.

### **Record of Decision and Notice of Determination**

This DEIS/R will be circulated to the public and local, state, and federal agencies for review and comment. A 45-day comment period will begin subsequent to the listing of the Notice of Availability in the Federal Register. Following completion of the 45-day review period and review of any comments, FHWA and the Department will identify a preferred alternative for the proposed project. This alternative will receive further analysis in the Final EIS/EIR (FEIS/R), as appropriate to assess any modifications or to address concerns raised during the public review period. No sooner than 30 days after approval of the FEIS, FHWA will issue a Record of Decision (ROD). Upon the approval of the FEIR, the Department will prepare a Notice of Determination, Statement of Overriding Considerations, and Findings, as appropriate.

It should be noted that at a future date FHWA may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that a final action has been taken on this project. If such notice is published, a federal lawsuit or other federal legal claim will be barred unless it is filed within 180 days after the date of publication of the notice (or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed). If no notice is published, then the federal lawsuit or claim can be filed as long as the periods of time provided by other Federal laws that govern claims are met.

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## **List of Technical Studies that are Bound Separately**

Public Scoping Report (September 1990)

Traffic Study Report (November 2004)

Air Quality Report (May 2005)

Noise Study Report (June 2002)

Water Quality Report (June 2002)

Natural Environment Study Report (August 2005)

Historical Property Survey Report (February 1991)

- First Supplemental Historical Property Survey Report (September 1997)

Finding of Effect (September 1997)

Visual Impact Assessment (June, 2004)

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## List of Abbreviated Terms

AADT	Average Annual Daily Traffic
ACHP	Advisory Council on Historic Preservation
ACM	Asbestos Containing Material
ACOE	Army Corps of Engineers
ADA	Americans With Disabilities Act
ADL	Aerial Deposited Lead
ADT	Average Daily Traffic
APE	Area of Potential Effect
ASR	Archeological Survey Report
BACM	Best Available Control Measure
BBARWA	Big Bear Area Regional Wastewater Authority
BBLFD	Big Bear Lake Fire Department
BBMWC	Big Bear Municipal Water Company
BBMWD	Big Bear Municipal Water District
BMP	Best Management Practice
BSA	Biological Study Area
BVES	Bear Valley Electric Service
CAAQS	California Ambient Air Quality Standards
CalTrout	California Trout Inc.
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHP	California Highway Patrol
CIDH	Cast In Drill Holes
CIP	Cast In Place
CISS	Cast in Steel Shell
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon Monoxide
dBA	Decibel
DBH	Diameter at Breast Height
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
Department	California Department of Transportation
DKP	Dam Keeper's House Property
DOT	Department of Transportation
DSOD	Division of Safety of Dams
EDU	Equivalent Dwelling Units
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act

*List of Abbreviated Terms*

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FOE	Finding of Effect
FPPA	Farmland Protection Policy Act
HASR	Historical Archeological Survey Report
HRER	Historical Resources Evaluation Report
HWCL	California Hazardous Waste Control Law
ISA	Initial Site Assessment
KP	Kilopost
Leq	Average hourly noise levels
LOS	Level of Service
M	Richter Magnitude
MCE	Maximum Credible Earthquake
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NESR	Natural Environment Study Report
NMFS	National Marine Fisheries Service
NO <sub>2</sub>	Nitrogen Oxide
NOA	Naturally Occurring Asbestos
NOD	Notice of Determination
NOI	Notice of Intent
NOP	Notice of Preparation
NO <sub>x</sub>	Nitrogen Gases
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O <sub>3</sub>	Ozone
OHWM	Ordinary high water mark
ORV	Outstandingly Remarkable Value
OSHA	Occupational Safety and Health Administration
PM	Postmile
PM <sub>2.5</sub>	Particulate Matter (less than 2.5 microns)
PM <sub>10</sub>	Particulate Matter (less than 10 microns)
ppm	Parts Per Million
RAP	Relocation Assistance Program
RCR	Route Concept Report
RCRA	Resource Conservation and Recovery Act
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SANBAG	San Bernardino Associated Governments
SARWQCB	Santa Ana Regional Water Quality Control Board
SBCSWMD	San Bernardino Solid Waste Management District
SBNF	San Bernardino National Forest
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCSD	San Bernardino County Sheriffs Department
SCWC	Southern California Water Company
SGC	Southwest Gas Corporation
SHOPP	State Highway Operations Protection Program
SHPO	State Historic Preservation Officer
SO <sub>2</sub>	Sulfur dioxide



SR	State Route
SSHD	Southwest Shore Historic District
STIP	State Transportation Improvement Program
STRAIN	Structure Replacements and Improvement Needs
SWMP	Storm Water Management Plan
SWPPP	Stormwater Pollution Prevention Program
SWRCB	State Water Resources Control Board
T&E	Threatened and Endangered
TASAS	Traffic Accident Surveillance Analysis System
TMDL	Total Maximum Daily Load
TMP	Traffic Management Plan
TSCA	Toxic Substance Control Act
TSM	Transportation Systems Management
U.S.	United States
USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VIA	Visual Impact Assessment
VQO	Visual Quality Objective
WPCP	Water Pollution Control Plan

# **Chapter 1 Purpose and Need**

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## **1.1 Introduction**

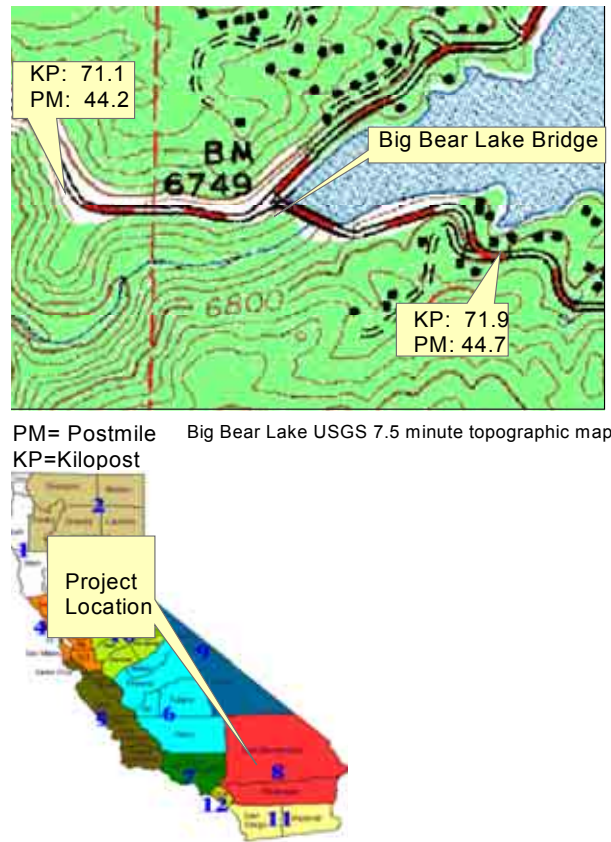
The proposed project is the replacement of the Big Bear Lake Dam Bridge (bridge #54-0310). The project is located at the western end of Big Bear Lake, approximately one mile west of the city limits of Big Bear Lake (Kilopost 71.1/71.9 [Postmile 44.2/44.7]). The project is located in Southern California in San Bernardino County. It is within the San Bernardino National Forest, surrounded by the steep slopes of the San Bernardino Mountains. The Big Bear Lake Dam Bridge is located on State Route 18 and is the only crossing at the western end of the lake (see Figure 1-1).

The existing bridge was built in 1924 on top of the Big Bear Lake Dam. The bridge is 107 meters (351 feet) long and has a curb-to-curb roadway width of 6.4 meters (21 feet) consisting of two 3.2-meter (10.5-foot) lanes with no shoulders. There is one 1.07-meter (3.5 feet) wide barrier rail sidewalk on the west side of the bridge. Neither the bridge, nor the approach roadways meet current Department Design Standards. The bridge has experienced increasing and wide spread deterioration over the last 80+ years, and the only permanent and cost-efficient alternative is its replacement.

## **1.2 Project Purpose**

The purpose of the proposed project is to provide structurally sound and operationally efficient access across Bear Creek Canyon or Big Bear Lake. The proposed project would: 1.) replace the existing bridge that is structurally degraded and functionally obsolete 2.) realign and widen approach roadways to improve sight distance and accommodate the proposed three-lane bridge and shoulders and 3.) signalize the intersection of State Routes 18 and 38 to enhance safety and minimize traffic accidents at the intersection. The third lane is required for storage at the signal to improve intersection channelization and operational efficiency of the intersection during peak seasonal and commute traffic periods.

Subsequent to completing the new bridge, the existing bridge would be removed from on top of the dam, which would facilitate the planned Big Bear Municipal Water District (BBMWD) spillway and outlet works improvements.

**Figure 1-1: Site Location Map**

## 1.3 Project Need

### 1.3.1 Deficiencies of Existing Bridge

There are no rehabilitation techniques that can address the narrow bridge width or any of the other bridge features that classify this structure as “Functionally Obsolete.”

Under the criteria of the Bridge Replacement Program, “Functionally Obsolete” bridges are defined as having a bridge appraisal rating of 3 or less in any of the bridge appraisal categories identified in Table 1-1 (appraisal categories rated from 0 [worst] to 10 [best]). Also included in the table are current ratings for the Big Bear Lake Bridge from the Department’s bridge report. The deck geometry and structural condition have ratings less than or equal to 3; therefore, the bridge is classified as functionally obsolete (SMI, 2003).

**Table 1-1: Appraisal Categories and Associated Ratings for Big Bear Lake Bridge**

Appraisal Categories	Appraisal Ratings for Big Bear Lake Bridge (obsolete if < or = 3)
Deck Geometry	2
Underclearances	N/A
Approach Roadway Alignment	4
Structural Evaluation	3
Waterway Adequacy	9
Source: SMI, 2003	

From the appraisal ratings, a sufficiency rating or an overall “health” indicator for the bridge is calculated. A bridge with a sufficiency rating less than 80 is considered to be deficient. A bridge with a sufficiency rating less than or equal to 50 is classified as functionally obsolete. The most current sufficiency rating (March 2003) for the Big Bear Lake Bridge is 19.6. This is one of the lowest sufficiency ratings for all bridge structures on the State Highway system (SMI, 2003).

#### **1.3.1.1 Structure Deterioration**

The Department of Bridge Maintenance and Investigation reports the bridge has experienced widespread deterioration. There are numerous locations of exposed and seriously corroded reinforcing steel in areas important to the integrity of the structural frame. Also, there is little remaining quality in the structure’s concrete due to previous heavy salting of the bridge during winter maintenance activities (see Photos in Appendix A). Continued structural rehabilitation of the degraded areas would not prevent the long-term deterioration of the structure and is only a temporary remedy until the bridge can be replaced.

#### **1.3.1.2 Seismic Inadequacy**

The Big Bear Lake Dam Bridge is located near several major faults (see section 3.12). These regional faults (with the exception of the south branch of the San Andreas Fault) have the potential of producing maximum credible earthquakes with Richter Magnitude ranging from 6.0 to 7.5. The south branch of the San Andreas Fault is reported as having the potential of producing earthquakes with a Richter Magnitude of 8.0+.

A retrofit strategy was investigated for the existing bridge in 1996. The retrofit strategy report recommends the bridge be retrofitted for the maximum credible earthquake (8.0+). However, due to the deterioration of the bridge superstructure and

the bridge's scheduled replacement, an interim retrofit was not pursued (Caltrans, 1996). Any replacement structure would be designed to meet current criteria for seismic safety (see Structures Memo in Appendix A).

#### **1.3.1.3 Operational Efficiency/Safety**

In accordance with Chapter 9 of the Department's Traffic Manual, signal warrants were evaluated for the intersection of SR-18 and SR-38. It was concluded warrants were met for a signalized intersection (Caltrans, 2004 [see Appendix E of Traffic Study Report]). The signal would be powered from the existing electrical infrastructure adjacent to the northern end of the existing bridge near the location of the proposed signal.

Additionally, the Traffic Accident Surveillance and Analysis System (TASAS) accident records database indicates 29 accidents occurred within the limits of the proposed project over a three-year period (June 1, 1999 through May 31, 2002). Accident's causes include speeding, failure to yield, failure to follow directional signs, falling asleep at the wheel, factors other than the driver, and unknown reasons. Seven accidents occurred at the intersection, eight accidents occurred on the bridge, twelve occurred on the approach roadway to the east of the dam, and two occurred on the approach roadway west of the dam (Caltrans, 2003a).

In the 1960s, both ends of the bridge were modified to increase the curve radii; however, the existing roadway does not meet the Department's current design standards. As components of the proposed bridge replacement, the approach roadways and the curve at the eastern end of the project will be brought up to current design standards, the bridge would be widened to three lanes for traffic storage at the proposed signal and the intersection of SR-18 and SR-38 will be signalized to improve intersection channelization and traffic operation and enhance the safety of the intersection and roadway within the project limits. Table 1-2 below compares the actual accident data for the project area and the average accident data for comparable sections of roadway throughout the state. The accident rate is nine times greater within the project limits than comparable sections of roadway within the state.

**Table 1-2: Accident Rates for 6/1/99 through 5/31/02**

Location	Actual			Average		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
SR-18 KP 77.1/77.9 (PM 44.2-44.7)	0.00	3.37	9.19	0.034	0.48	1.00

Source: Caltrans, 2003a

### 1.3.1.4 Non-Standard Features

The existing bridge deck has a curb-to-curb width of 6.4 meters (21 feet). There is also a 1.07-meter (3.5 feet) wide barrier rail sidewalk along the west side of the bridge. Due to the narrow bridge deck, larger vehicles use most of both the existing lanes, forcing other traffic to clear the way and/or wait until these vehicles have passed (See Photos in Appendix A). The Department's minimum design standard for two lane bridges is 12.9 meters (40 feet). This includes 2.4-meter (8 feet) wide shoulders. The Department is proposing a three-lane bridge to accommodate traffic storage at the intersection of SR-18 and SR-38. The intersection would also be signalized to improve intersection channelization and enhance the safety of the intersection and roadway within the project limits for the design life of the project. The proposed bridge would also have 3.0-meter (10-foot) shoulders to facilitate snow removal by maintenance crews and accommodate emergency vehicle access during peak travel times (Caltrans, 2004).

### 1.3.2 Big Bear Municipal Water District Spillway and Outlet Works Improvements

In 1980, the Department of Water Resources, Division of Safety of Dams (DSOD) ordered BBMWD to investigate the Bear Valley Dam (Big Bear Dam) for seismic adequacy. The evaluation revealed the dam was unsafe in the event of an earthquake of maximum credible Richter Magnitude of 7.5-8.0. The study also found that the outlet works did not meet the criteria for high-risk structures.

In 1985, the Department and BBMWD studied the feasibility of jointly building a new dam with a roadway across it to replace the existing dam and bridge. The study concluded a joint project was not feasible and that the two agencies should pursue independent projects. Big Bear Municipal Water District decided to proceed with mass concrete infilling of the existing dam. The infilling project was to include

replacement of the outlet works and the addition of two auxiliary spillways to prevent lakeshore flooding.

The planned upgrades to the spillways and outlet works required the existing State Route 18 bridge be relocated to facilitate the spillway and outlet works improvements. The Department and the BBMWD determined it was not economically feasible to deny vehicle access on SR-18 for any significant amount of time without adverse impacts to the local economy, emergency vehicle response times, and local traffic patterns. The spillway and outlet works improvements were postponed until after completion of the new bridge and removal of the existing bridge.

In 1987, BBMWD completed an EIR assessing the impacts resulting from the proposed repair of seismic deficiencies of the dam. In 1988, BBMWD completed rehabilitation of seismic deficiencies by concrete infilling (BBMWD, 1987).

Improvements to spillways and outlet works are pending, and will be completed subsequent to completion of a new bridge and removal of the existing bridge ([www.BBMWD.org](http://www.BBMWD.org)).

## **1.4 Project Background**

The Department began studies on the Big Bear Dam Bridge replacement in 1984 while considering a coordinated effort with the BBMWD to implement the required dam improvements; however, this approach was reconsidered in 1985. A discussion of the relationship between the proposed project and the Dam Rehabilitation Project is provided in Section 1.3.2. The Department began pursuing the proposed project as a separate project in 1989. During the planning stages of the project, an extensive scoping process was initiated to gather input from federal, state and local agencies, as well as the public on issues to be considered prior to implementation of the proposed project. Subsequent to the scoping process and pursuant to NEPA and CEQA, a Notice of Intent (NOI) and Notice of Preparation (NOP) were prepared. The NOI was published in the Federal Register on August 30, 1990. The NOP was issued by the State Clearinghouse on January 17, 1991 and the review was completed on February 2, 1991. On February 12, 2004 the NOI was republished due to the length of time that had passed since it was originally published and to update the project information within the NOI (see Appendix B).



Correspondence requesting resource agency participation as cooperating/responsible agencies was sent on September 23, 1993. Letters were sent to the following Federal and State agencies:

- Cooperating Agencies: U.S. Army Corps of Engineers (ACOE), U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS).
- Responsible Agencies: State Water Quality Control Board and California Department of Fish and Game (CDFG).

In response to the request letters, USFWS and the USFS agreed to be cooperating agencies under NEPA. The Regional Water Quality Control Board, Santa Ana Region (SARWQCB) and CDFG agreed to be responsible and trustee agencies as required under CEQA (see Appendix B).

This proposed project initially had five alternatives; four build alternatives and the No Action/No Build Alternative. Two of the four build alternatives are carried through the project development process and are evaluated as the build alternatives within this document. The No Action/No Build alternative is also evaluated and provides a baseline for comparing the impacts of the build alternatives to the existing conditions. The other alternatives were dropped from further consideration and analysis. Reasoning for dropping these alternatives is discussed in “Section 2.2 Alternatives Considered and Withdrawn.” The two-build alternatives are:

- Alternative 4: Three-lane bridge across the lake; and
- Alternative 5: Three-lane bridge across the canyon.

A detailed discussion of the build alternatives, as well as reasoning for withdrawing consideration for the other alternatives, is provided in Chapter 2 “Project Alternatives.”

#### **1.4.1 Programming and Funding**

The proposed project would be funded from the HA 21 (Bridge Restoration and Replacement) Program in the 2006/2007 State fiscal year. The proposed project is listed in the 2004 State Highway Operation and Protection Program (SHOPP), and also identified in the Structure Replacement and Improvement Needs (STRAIN)

report for replacement with urgency. The proposed project is included in the 2004 Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP). The proposed project is bridge replacement and intersection channelization project, which is exempt from regional air quality analysis per 40 CFR Part 93. The RTP and RTIP were adopted by the SCAG on April 1, 2004, and September 10, 2004, as Resolution #04-451-2. The FHWA approved the 2004 RTP and RTIP on June 7, 2004, and October 4, 2004, respectively. The proposed project can be found within the Exempt Lump Sum projects in SCAG's 2004 RTP (Appendix I, page I-137) and also within SCAG's 2004 RTIP within the Exempt Lump Sum in San Bernardino County's State Highways (page 38). Copies of these pages from the 2004 RTP and RTIP are provided in Appendix J. Both of the build alternatives as described within this document, still meet the exempt status criteria, per 40 CFR part 93, and will not delay timely implementation of the Transportation Control Measures (TCMs) identified in the South Coast Air Basin's State Implementation Plan (SIP).

The project is scheduled to begin construction in 2008. The proposed project was programmed for \$27,884,000 in the 2004 SHOPP. The preliminary cost estimate for the proposed project is \$15,300,00 to \$26,283,000.



## **Chapter 2      Project Alternatives**

---

This chapter discusses the alternatives development process, identifies the alternatives considered for detailed evaluation within this DEIS/R including the No Action/No Build Alternative, and discusses alternatives that were considered but eliminated from further consideration.

### **2.1    Alternative Development Process**

As previously discussed, the Department initially worked on a joint project in coordination with the BBMWD to replace the existing bridge and dam. However, the joint effort could not proceed due to the BBMWD time constraints for completing the seismic work and for the Department to obtain environmental approval for the joint project. The BBMWD completed its seismic retrofit of the dam in the summer of 1988. The Department initiated analysis of the proposed bridge replacement project in 1989. During early phases of the development process, the Department developed five alternatives for consideration (including the No Action/ No Build Alternative and four build alternatives). These alternatives included:

- Alternative 1 - The No Action/No Build alternative would require continued maintenance on the existing bridge;
- Alternative 2 - Replace the existing bridge with a new bridge on or elevated over the existing Big Bear Dam (See Section 2.2.2, Figure 2-13);
- Alternative 3 - Replace the existing bridge with a new bridge downstream of the dam across Bear Creek Canyon and on a straight alignment with a cut or tunnel through the hillside (see Section 2.2.3, Figure 2-14);
- Alternative 4 - Replace the existing bridge with a new bridge crossing the west end of Big Bear Lake (see Section 2.2.4, Figure 2-15); and
- Alternative 5 - Replace the existing bridge with a new bridge downstream of the dam across Bear Creek Canyon, rejoining existing SR-18 near east end of the existing dam (see Section 2.2.5, Figure 2-16).

A multi-agency and public scoping process was initiated by the Department in April 1990. The purpose of this process was to elicit input on the proposed project and the alternatives described above. The objectives of the scoping process were to present the proposed alternatives and resources identified for consideration in the environmental studies as well as to identify the concerns and requirements of public agencies and individuals affected by the project. In response to comments and suggestions received from other agencies and the public during the scoping process, Alternatives 2 and 3 were dropped from further consideration and Alternatives 4 and 5 were modified. The alternatives withdrawn from consideration are discussed in Section 2.2. The modified versions of Alternatives 4 and 5 are evaluated as the build alternatives in this DEIS/R and are described in detail within this chapter. The No Action/No Build Alternative and Alternatives 4 and 5 are shown in Figures 2-1, 2-2 and 2-3, respectively. The preliminary engineering drawings and profiles for Alternatives 4 and 5 are included in Appendix C.

Final selection of an alternative will not be made until after consideration of impacts and public hearing comments, and approval of the FEIS/R.

Figure 2-1: No Action / No Build Alternative

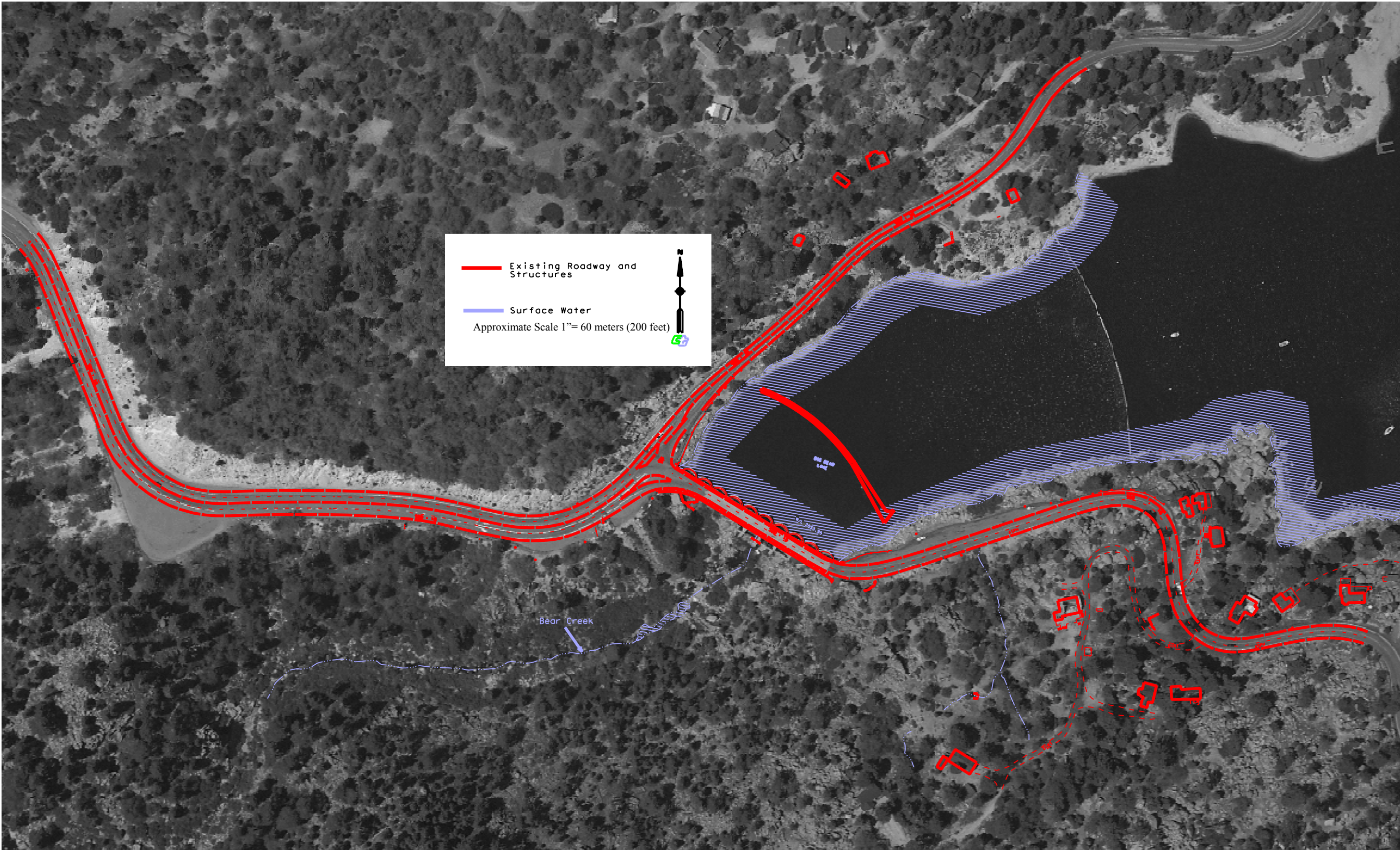
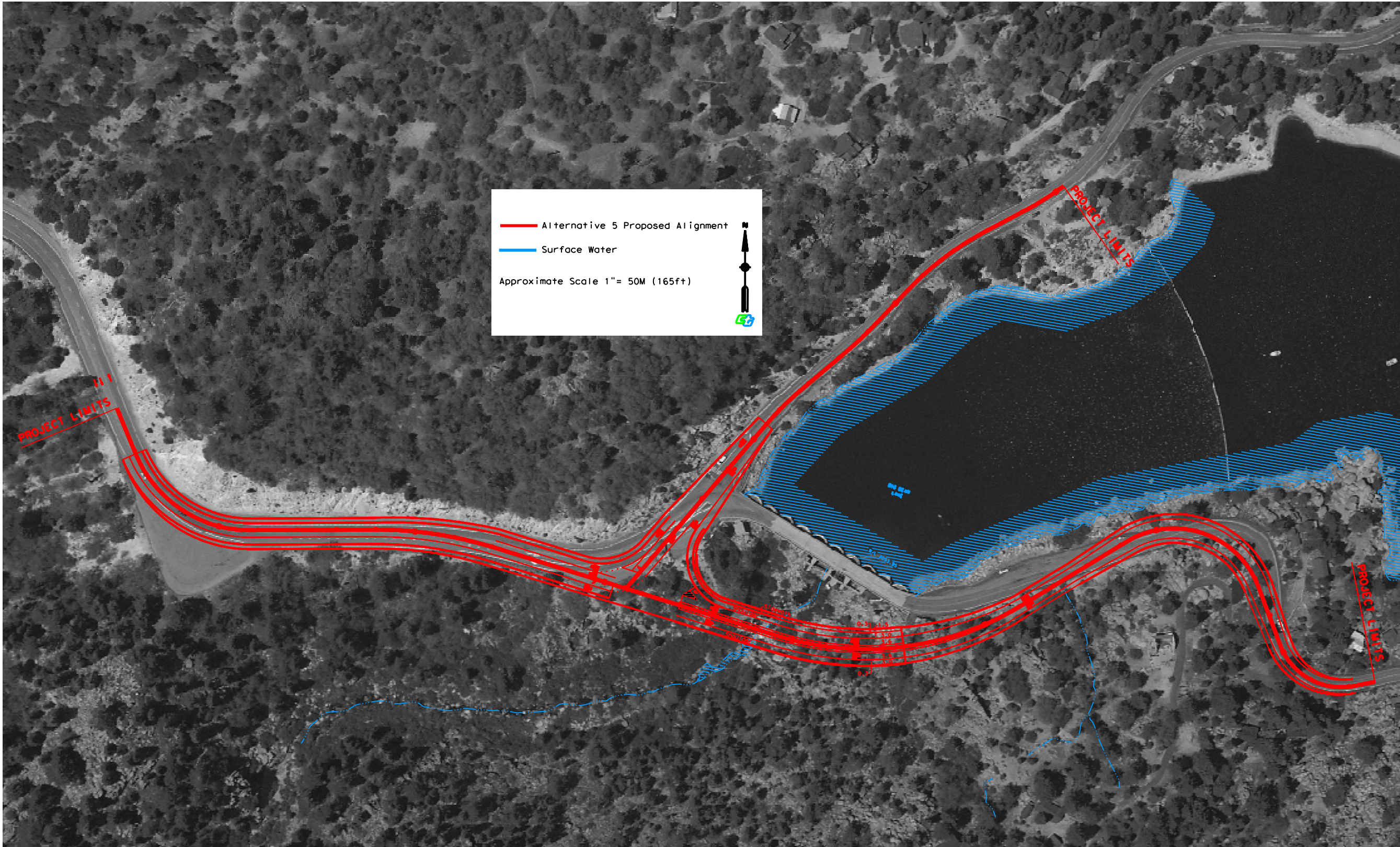








Figure 2-3: Alternative 5



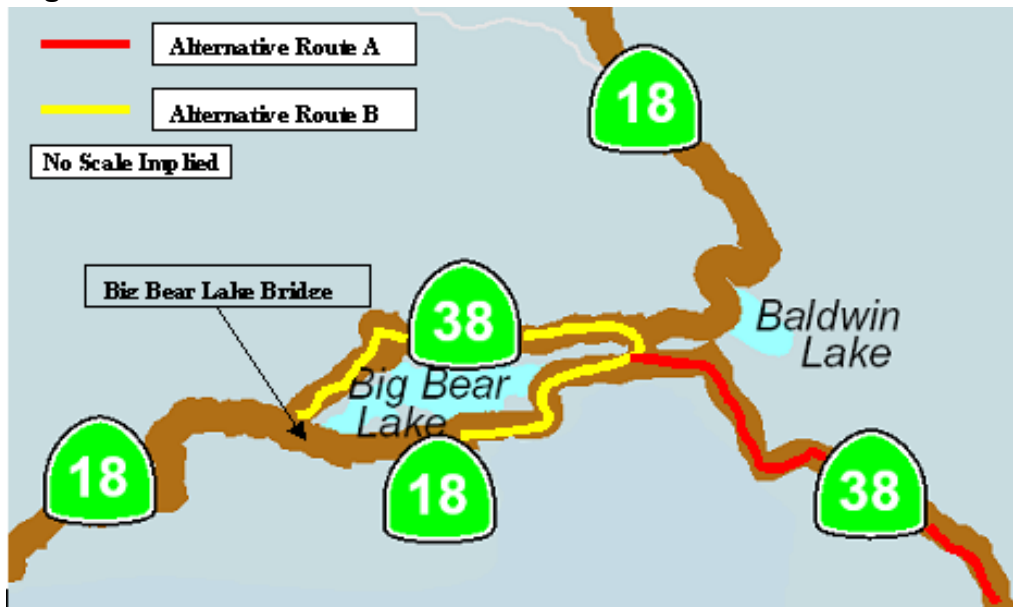


### **2.1.1 The “No Action / No Build” Alternative**

Under the No Action/No Build alternative (See Figure 2-1), improvements to the Big Bear Lake Dam Bridge on SR-18 would not be implemented, thus requiring the continued maintenance of the existing structurally degraded and functionally obsolete bridge. This alternative would also preclude the BBMWD from completing improvements to the spillways and outlet works. The No Action/No Build alternative does not meet the proposed project’s purpose and need.

Potential consequences of this alternative, if pursued, include:

- Lakeshore flooding could occur as a result of the postponement of the BBMWD outlet works and spillway improvements. As indicated in the 1987 Final EIR for the Bear Valley Dam Rehabilitation project, lakeshore flooding (up to high water elevation of 2,056 meters [6,747 feet]) around Big Bear Lake could still occur (BBMWD, 1987); and
- With continued bridge rehabilitation, it may be necessary for the Department to place load restrictions on vehicles using the bridge to maintain bi-directional access to the community. Eventually, if bridge rehabilitation were no longer cost effective, the bridge would have to be closed and/or reconstructed. All traffic would have to use State Route 38 from Mentone via Interstate 10 (see Figure 2-4 Alternative Route A) or continue east to State Route 38 from State Route 18 to the Stanfield Cutoff to reach the south side of Big Bear Lake (see Figure 2-4 Alternative Route B). The shortest alternative to going across the Big Bear Lake Bridge (approximately 6.6 mile round-trip to use the Stanfield Cutoff) would result in a minimum of approximately 15.2 million additional vehicle miles (2.3 million vehicles per year [6,300 AADT]) and approximately 7.6 million gallons of additional gasoline consumption (at 20 miles to the gallon). The No Action/No Build alternative would result in increased travel time and unnecessary use of natural resources.

**Figure 2-4: Alternative Routes For No Action/ No Build Alternative**

\*No Scale Implied

### 2.1.2 Build Alternative 4

Alternative 4 proposes to construct a new bridge over the western end of Big Bear Lake (see Figure 2-2). In addition to the new bridge across the lake, the project would include a minor realignment and widening of the approach roadways along SR-18 to accommodate the wider shoulders and bridge. The proposed bridge would be widened to 3-lanes from the existing 2-lane bridge for traffic storage at the signal and to enhance traffic channelization. The intersection of SR-18 and SR-38 would be signalized to enhance the operational efficiency of the intersection. Preliminary design indicates four retaining walls and two cut-slopes would be required, two retaining walls and one cut-slope on both the north and south sides of the lake. The locations of the proposed retaining walls are described in more detail in Section 2.1.2.5. Subsequent to construction of the new bridge, the existing bridge would be removed from on top of the dam to enable the BBMWD to complete the planned spillway and outlet works improvements.

#### 2.1.2.1 Location of Proposed Bridge

The proposed bridge for Alternative 4 would be constructed on a parallel alignment approximately 120 meters (400 feet centerline to centerline) upstream (across Big Bear Lake) of the existing bridge, and approximately 40 meters (130 feet) upstream (northeast) of the submerged 1884 Bear Valley Dam (see Figure 2-2).

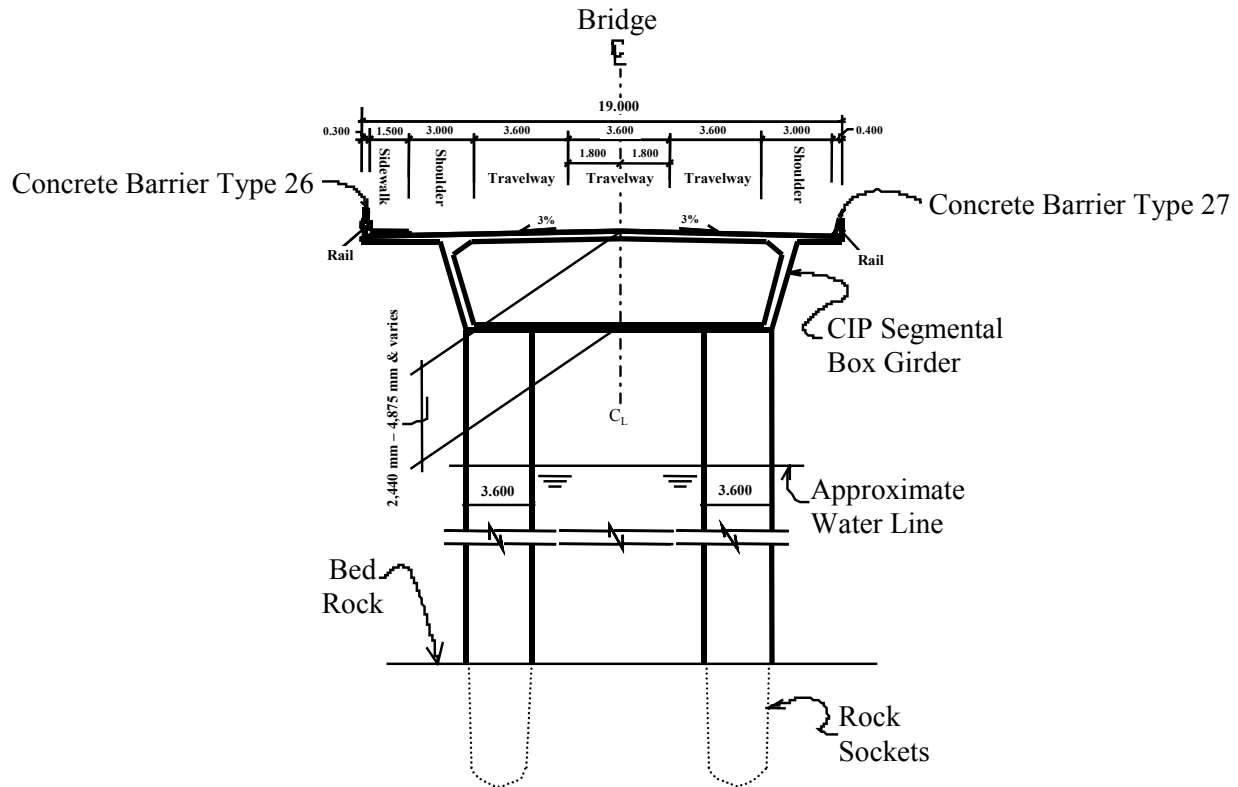
### **2.1.2.2 Dimensions of Proposed Bridge and Lane Configuration**

The proposed bridge for Alternative 4 would be 189 meters (620 feet) long and have a bridge deck width of 19.0 meters (65 feet). The bridge would have 3.0-meter (10-foot) shoulders and one 1.5-meter (5-foot) sidewalk (see Figure 2-5: Alternative 4 Typical Cross-section). The bridge's elevation would be approximately 7 meters (23 feet) higher than the existing bridge deck.

The Department proposes a three-lane bridge with two 3.0-meter (10-foot) shoulders and a right hand turn pocket in comparison to the existing bridge, which consists of two 3.2-meter (10.5-foot) lanes with no shoulders. The bridge would have one eastbound 3.6-meter (12-foot) lane entering Big Bear (same as existing) and two 3.6-meter (12-foot) westbound lanes and a right hand turn pocket leaving Big Bear. The two westbound lanes are for storage at the signal for left turn movements to improve intersection channelization for the main traffic movement westbound down the mountains. The two left turn westbound lanes would also enhance intersection safety for drivers as they approach the intersection while improving the operational capacity of the intersection (see section 3.7). The right turn pocket would allow vehicles to access eastbound SR-38 with minimal interruption to the main traffic movement down the mountains. The 10-foot shoulders would better facilitate snow removal on the bridge by providing areas for temporary snow storage on the bridge but outside of the travelway. The 10-foot shoulders would also provide improved access for emergency vehicles during peak hour traffic.

The approach roadways within the project limits would be widened to accommodate the new 10-foot shoulders and right turn pocket; however, the number of lanes on the approach roadways to and from the bridge will remain the same as the existing (see Figure 2-2).

**Figure 2-5: Alternative 4 Bridge Typical Cross-section  
(Viewing Eastbound on SR-18)\***



\* Drawing not to scale and dimensions in meters.

### 2.1.2.3 Approach Roadway Modifications

The approach roadways would be relocated and widened to accommodate the larger bridge and shoulders at the new bridge location. The western approach (intersection of SR-18 and SR-38) would be relocated approximately 120 meters (400 feet) northeast of the existing bridge and signalized to enhance the operational efficiency of the intersection.

The eastern approach would be realigned 165 meters (540 feet) southeast of the existing bridge, and widened to accommodate the new shoulders and wider bridge. It would rejoin the existing alignment of SR-18 at the first curve east of the existing dam where SR-18 curves around a prominent granite rock outcropping near cut-slope 2 (see Figure 2-6).

#### 2.1.2.4 Bridge Type and Preliminary Cost

Multiple bridge types were evaluated during the project development process. The Department identified the cast-in-place (CIP) segmental box girder with reinforced concrete to be most feasible and least disruptive to resources. Final bridge type selection will not be completed until after the identification of a preferred alternative; however, it is the determination of the Department to use this bridge type to analyze impacts associated with Alternative 4.

The proposed bridge would be built on a straight alignment across Big Bear Lake. The proposed bridge substructure would require two piers driven into and attached to bedrock beneath the lake. The abutments would be located outside of Big Bear Lake and would be constructed to accommodate continued access for shoreline recreational activities subsequent to construction. Any existing roadway not incorporated into the project would be relinquished to the USFS.

The estimated construction cost for Alternative 4 is \$15.3 million dollars. The estimated costs for project components are provided in Table 2-1.

**Table 2-1: Proposed Costs for Alternative 4**

Construction Items	Roadway	Retaining Walls	Right of Way	Structure	Total
(Cost in \$1,000's)	\$2,500	\$800	\$100	\$11,900	<b>\$15,300</b>

Totals do not include any mitigation costs. Source: Caltrans 2003a

### **2.1.2.5 Preliminary Retaining Wall Locations**

Preliminary engineering indicates the potential need for retaining walls and cut-slopes at five locations for Alternative 4. The proposed retaining wall/cut-slope approximate sizes are indicated below and their proposed locations are shown in Figure 2-6.

North Shore:

- **Cut-slope 1:** 94 meters (308 feet) long, Max height 4 meters (13 feet).
- **Retaining Wall 1:** 85 meters (280 feet) long, Max height 3.5 meters (11.5 feet).
- **Retaining Wall 2:** 70 meters (230 feet) long, Max height 3.5 meters (11.5 feet).

South Shore:

- **Cut-slope 2:** 14 meters (46 feet) long, Max height 4 meters (13 feet).
- **Retaining Wall 3:** 50 meters (164 feet) long, Max height 8.5 meters (28 feet).
- **Retaining Wall 4:** 5 meters (26 feet) long, Max height 12 meters (40 feet).

Figure 2-6: Proposed Retaining Wall Locations for Alternative 4



#### **2.1.2.6 Potential Construction Scenario for Alternative 4**

Alternative 4 would consist of building a three span CIP segmental box girder concrete superstructure supported on cast in steel shell (CISS) concrete piles. Each pier would consist of an array of two 2.4-meter (8-foot) diameter CISS concrete piles. The piers would be socketed into bedrock at the lake bottom. The abutments of the bridge would be supported on spread or pile footings.

The CIP segmental box girder construction would likely be selected for the superstructure (spans) to minimize temporary construction activities (falsework) within Big Bear Lake. The depth of the water beneath the proposed alignment of Alternative 4 could be in excess of 30 meters (100 feet). The depth of the water and confined work area make it highly unlikely that the contractor would choose an alternative construction method.

With constraints at the proposed project location, it is anticipated a balanced cantilever construction method would likely be used when constructing the superstructure (bridge deck and roadway). By utilizing the balanced cantilever construction method, the contractor would construct the superstructure from the piers (from pier to pier and from pier to abutment).

The following is an example of a possible construction scenario for constructing the proposed bridge for Alternative 4 utilizing the balanced cantilever construction method:

- Mobilize the contractor's personnel and equipment;
- Clear, grub and excavate the east and west roadway embankments;
- Mobilize and secure barges to be used for construction access to the site;
- Excavate or blast for the abutments;
- Provide shoring or cut the slope back in the excavated areas;
- Construct piles, if required, at the abutments;
- Drive the CISS piles to a specified tip elevation at piers.
- Drill out inside of the CISS piles for rock sockets;
- Place reinforcing steel in the abutment and CISS piles, place and finish the concrete;
- Place falsework and forms for the abutments and wing walls;
- Place reinforcing steel, and place and finish concrete for the abutments;
- Construct the superstructure using the balanced cantilever construction method described above;
- Strip falsework and forms from the abutments and wing walls;
- Construct barrier railings and joint seals;
- Complete final grading around abutments;



- Mitigate for all of the affected areas as required in the proposed mitigation and monitoring agreements for Alternative 4 described within this document; and
- Remove the existing bridge subsequent to opening the new bridge to traffic.

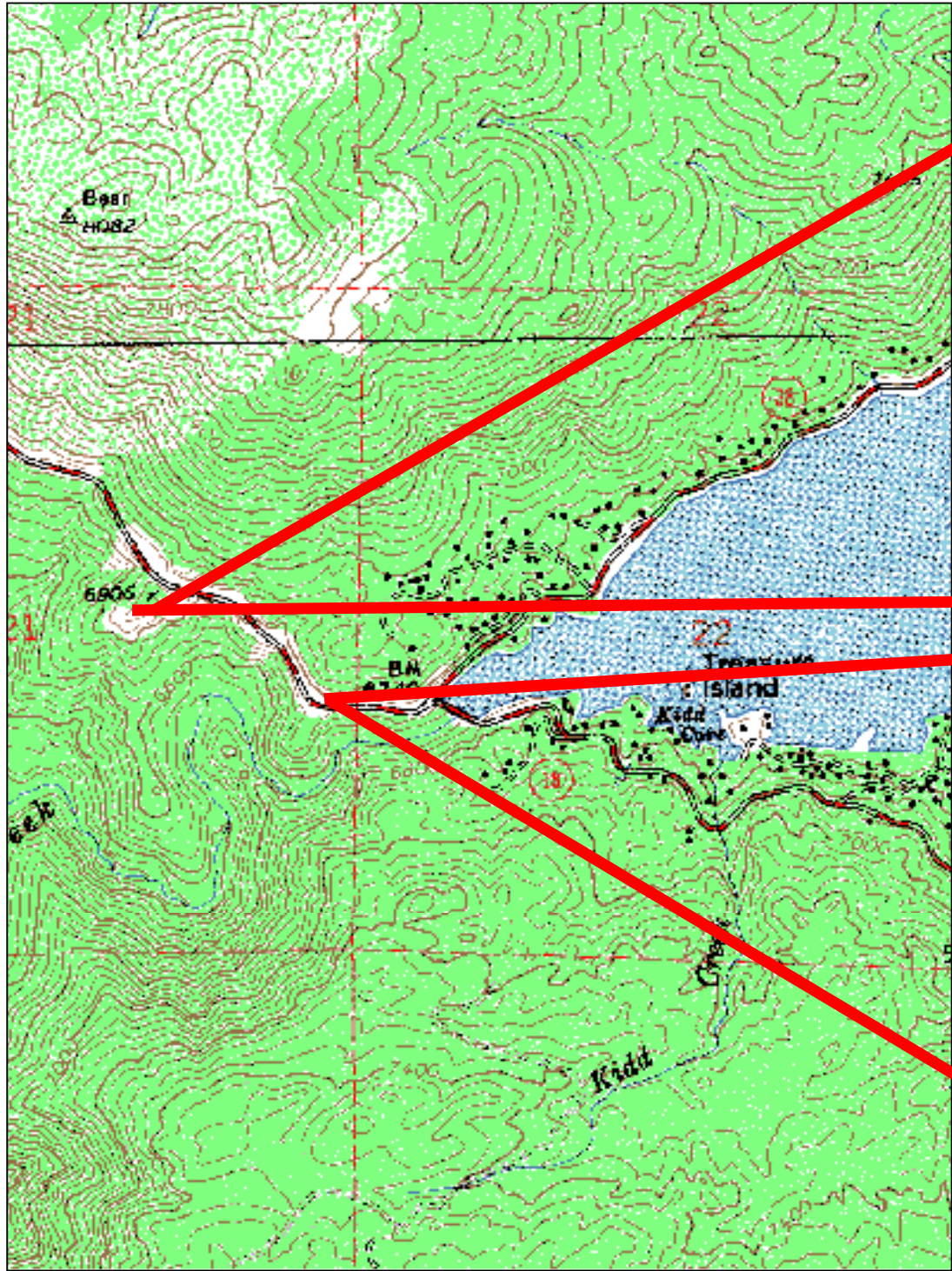
This construction sequence is not mandatory, and should not be interpreted as such. It is only for the reader's reference to provide an idea of the type of construction staging that could take place during construction of this alternative. Areas that are proposed by the Department for construction storage/staging for this alternative are shown in Figures 2-7 and 2-8.

#### **2.1.2.7 Range of Construction Access Alternatives**

Access to the construction area would be required for the delivery of personnel, equipment, and materials. Access to all support locations and the approach embankments would be required. Barges and boats and/or a temporary trestle across the water would be required for construction of this alternative. A description of construction access methods is provided below. All construction activities for this alternative would take place within the construction impact area identified in Figure 2-9. Construction impacts and impact mitigation are discussed in Chapter 3.

Figure 2-7: Construction Staging & Storage Areas (Alternatives 4&5)

Existing ½ acre staging area at Postmile 43.75-43.85 used by Caltrans for projects in area.



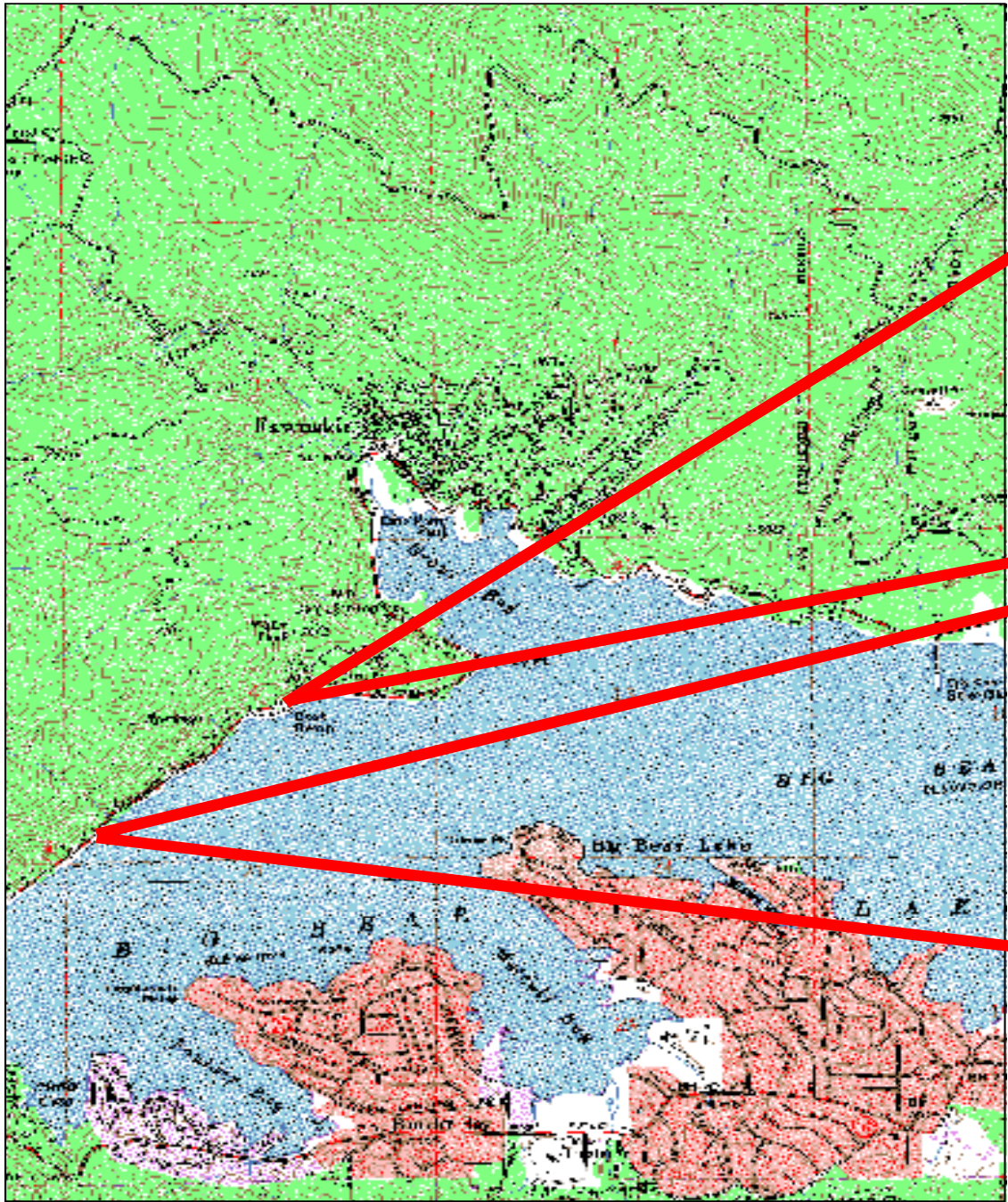
USGS, 1996a



Existing 1/2 acre turn out located at Postmile 44.09



Figure 2-8: Barge Launch & Construction Staging & Storage Area (Alternative 4)



USGS, 1996b

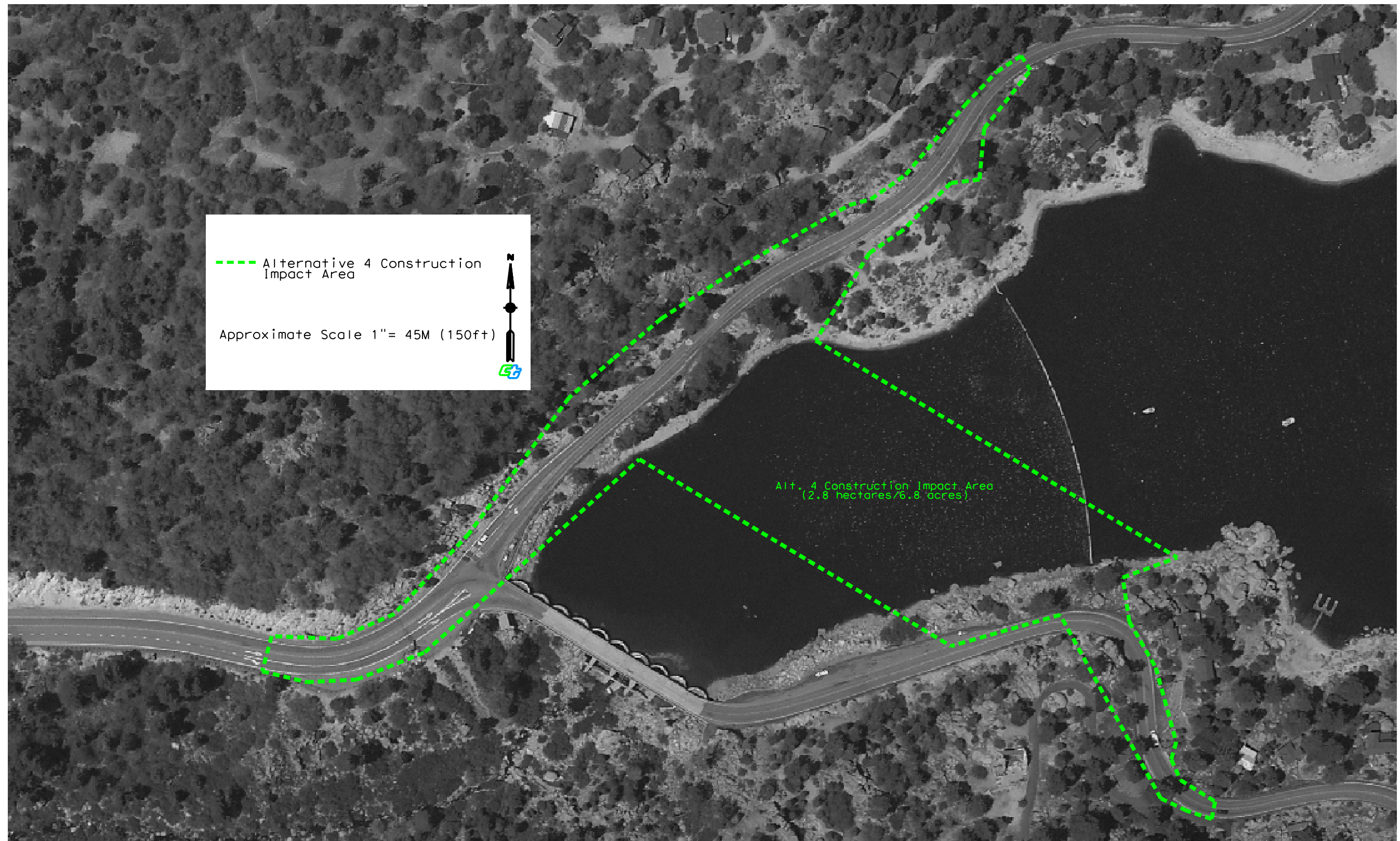
Public boat launch located at Postmile 57.29 would be used to launch barges.



1/2 acre adjacent to Grays Landing (Postmile 58.16) would be used as a storage/staging area.



Figure 2-9: Alternative 4 Construction Impact Area



### **Barges and Boats:**

The most effective method to deliver personnel, equipment, and material for construction of Alternative 4 would be by barge and boat. The contractor would determine the size and number of barges and boats required for the proposed project. The barges would be anchored to the bottom of the lake near the bridge site and be large enough to store equipment and materials such as cranes, concrete trucks, concrete pumps, bar reinforcement, lumber, etc. The barges and boats could be launched from the boat ramp (see Figure 2-8) or lowered into the lake by crane.

### **Construct Trestle Across the Water:**

A trestle is a temporary bridge is designed and built by the contractor to provide equipment and personnel access to the construction area. The trestle would be constructed at the proposed location of one abutment and continue across the water ending near the proposed location of the second abutment. The trestle bridge could be constructed on either side of the proposed bridge. The contractor would use barges and boats to deliver materials and equipment during construction of the proposed trestle.

The depth of water beneath the proposed bridge site could be in excess of 30 meters (100 feet) deep. This would make it difficult to construct any type of temporary bents for the trestle bridge. The temporary trestle bents would require cofferdams or large diameter CISS piles driven into the bedrock. The temporary trestle would likely be a more expensive construction option compared to using barges and boats only.

### **Operational Access:**

The contractor would be required to design and build a catwalk system at various locations of the new bridge. The catwalk system would be utilized by both the contractor's personnel during construction, and by Department personnel during inspection and maintenance of the proposed bridge during and after construction.

### **Removal of Existing Bridge:**

The existing bridge across the top of Big Bear Dam will be removed when the construction of a new bridge is complete. The existing Big Bear Lake Bridge was first constructed in 1924 as an addition to the existing dam. The existing bridge was built using haunched concrete T- beam girders that are supported on the dam's arched ribs. The bridge is 107 meters (350 feet) long, 6.4 meters (21 feet) wide and has a

structure depth that varies from 0.75 meters (2.5 feet) at the center of the spans to 1 meter (3.5 feet) at the centerline of the bents. There are 12 spans and each span has 4 T- beam girders.

The contract special provisions would require an engineered removal plan be submitted to the Department for review and approval. This plan would be reviewed for compliance with all applicable environmental permits. The existing bridge would most likely be removed span-by-span from either abutment. At each span, the contractor would remove the connection between the superstructure and the top of the bent cap. The contractor would likely remove the concrete deck by saw cutting through the bridge deck between the T-beam girders for the length of the span.

The contractor will provide safety measures to ensure the bridge removal process is performed safely. The girders are typically hoisted from their existing position, broken up, and hauled from the site. This operation would continue for each of the T-beam girders until the entire bridge has been removed. The contractor will be required to provide safety nets, platforms or other measures to ensure materials and/or debris do not fall into the lake or canyon during the bridge removal.

### **2.1.3 Build Alternative 5**

Alternative 5 proposes to construct a new bridge downstream of the existing dam across Bear Creek Canyon (see Figure 2-3). In addition to the new structure, the project would include a minor realignment and widening of the approach roadways along SR-18 to accommodate the wider shoulders and bridge. The proposed bridge would be widened to 3-lanes from the existing 2-lane bridge for traffic storage at the signal to improve intersection channelization. The intersection of SR-18 and SR-38 would be signalized to enhance operational efficiency of the intersection. Preliminary design indicates three retaining walls and three cut-slopes would be required.

Retaining walls and cut-slopes are proposed for both the east and west sides of the proposed bridge. The locations and sizes of the proposed walls and cut-slopes are described in more detail in Section 2.1.3.5. Subsequent to the construction of the new bridge, the existing bridge would be removed from the top of the existing dam to enable BBMWD to complete spillway and outlet works improvements.

#### **2.1.3.1 Location of Proposed Bridge**

The proposed bridge for Alternative 5 would be constructed on a skewed alignment across the canyon and Bear Creek. The proposed bridge would be located approximately 63 meters (207 feet) downstream of the existing bridge at its western

abutment and approximately 17 meters (55 feet) downstream of the existing bridge at its eastern abutment (see Figure 2-3).

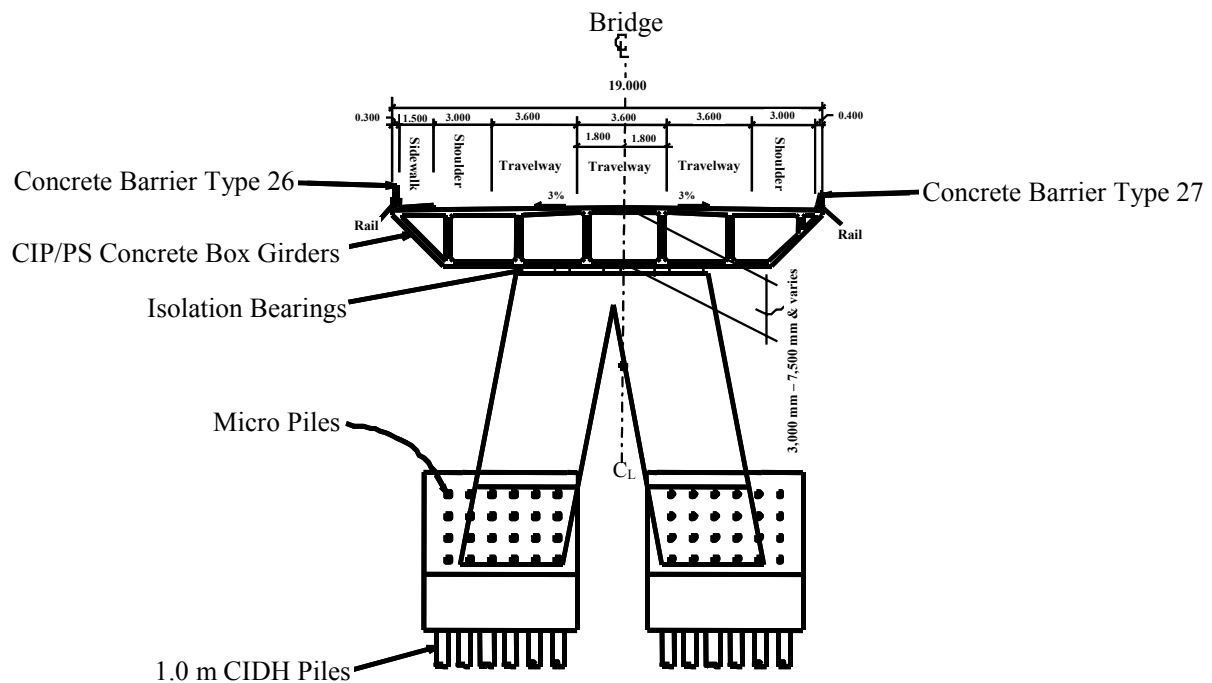
### **2.1.3.2 Dimensions of Proposed Bridge and Lane Configuration**

The proposed bridge for Alternative 5 would be approximately 130 meters (430 feet) long and would have a bridge deck width of 19.0 meters (65 feet). The bridge would have 3.0-meter (10-foot) shoulders and one 1.5-meter (5-foot) sidewalk (see Figure 2-10: Alternative 5 Typical Cross-section). The bridge deck elevation would be approximately 1 meter (3 feet) higher than the existing bridge deck and 30 meters (100 feet) above Bear Creek.

The Department proposes a three-lane bridge with two 3.0-meter (10-foot) shoulders and a right hand turn pocket in comparison to the existing bridge, which is two 3.2-meter (10.5-foot) lanes with no shoulders. The bridge would have one eastbound 3.6-meter (12-foot) lane entering Big Bear (same as existing) and two 3.6-meter (12-foot) westbound lanes and a right hand turn pocket leaving Big Bear. The two westbound lanes are for storage at the signal for through movements to improve intersection channelization for the main traffic movement westbound down the mountains. The two westbound through lanes would also enhance intersection safety to drivers as the approach the intersection while improving operational capacity of the intersection (see section 3.7). The right turn pocket would allow vehicles to access eastbound SR-38 with minimal interruption to the main traffic movement down the mountains. The 10-foot shoulders would better facilitate snow removal on the bridge by providing for temporary snow storage on the bridge but outside of the travelway. The 10-foot shoulders would also provide improved access for emergency vehicles during peak hour traffic.

The approach roadways within the project limits would be widened to accommodate the 10-foot shoulders and right turn pocket; however, the number of lanes on the approach roadways to and from the bridge will remain the same as the existing (see Figure 2-3).

**Figure 2-10: Alternative 5 Typical Cross-Section  
(Viewing Eastbound on SR-18)\***



\*Drawing not to scale and dimensions in meters.

### 2.1.3.3 Approach Roadway Modifications

The approach roadways for Alternative 5 would be relocated and widened to accommodate the larger bridge and shoulders at the new bridge location. The western approach (intersection of SR-18 and SR-38) would be relocated approximately 68 meters (223 feet) to the west and signalized to enhance operational efficiency for the main peak hour movement down the mountains.

The eastern approach would be located near the existing SR-18 roadway, approximately 17 meters (56 feet) to the south of the existing bridge and widened to accommodate shoulders and a wider bridge. This approach would be wider than the existing roadway and would require removal of a portion of a granite rock outcropping prior to reconnecting to the existing SR-18. This alternative would also remove a portion of the granite rock outcropping located near the first curve east of the dam along SR-18 near cut-slope 3 (see Figure 2-11). The curve at this location would be realigned to the north to improve sight distance and enhance safety (see Figure 2-3).



#### 2.1.3.4 Bridge Type and Preliminary Cost

Multiple bridge types were evaluated during the project development process. The Department identified the CIP prestressed concrete box girder superstructure on a split arch substructure to be most feasible while still minimizing impacts to resources. Final bridge type selection will not be completed until after the selection of a preferred alternative; however, it is the determination of the Department to utilize this bridge type to analyze impacts associated with Alternative 5.

The proposed bridge superstructure for Alternative 5 would be a cast in place (CIP), prestressed, concrete box girder. The proposed substructure would consist of a split arch on a skewed alignment. The split arch configuration would be located on the sides of the canyon, outside of environmentally sensitive areas. The abutments for the proposed bridge would be located near the top of the canyon, also outside of any environmentally sensitive areas. Any existing roadway not incorporated into the project would be relinquished to the USFS.

The construction cost for Alternative 5 is approximately \$24.2 million dollars. The proposed costs for the project components are provided in Table 2-2.

**Table 2-2: Proposed Costs for Alternative 5**

Construction Items	Roadway	Retaining Walls	Structure	Right of Way	Trestle	Total
(Cost in \$1,000's)	\$4,400	\$2,000	\$13,500	\$50	\$4,250	<b>\$24,200</b>

\* Totals do not include any mitigation costs. Source: Caltrans 2003a

### **2.1.3.5 Preliminary Retaining Wall Locations**

Preliminary engineering indicates the potential need for retaining walls and cut-slopes at six locations for Alternative 5. The proposed retaining wall/cut-slope approximate sizes are indicated below and their proposed locations are shown in Figure 2-11.

West Side:

- **Cut-slope 1:** 94 meters (308 feet) long, Max height 4 meters (13 feet).
- **Cut-slope 2:** 40 meters (131 feet) long, Max height 3 meters (10 feet).
- **Retaining Wall 1:** 87 meters (285 feet) long, Max height 14 meters (46 feet).

East Side:

- **Retaining Wall 2:** 79 meters (259 feet) long, Max height 12 meters (40 feet).
- **Retaining Wall 3:** 60 meters (197 feet) long, Max height 6.5 meters (21 feet).
- **Cut-slope 3:** 75 meters (246 feet) long, Max height 8 meters (26 feet).

Figure 2-11: Proposed Retaining Wall Locations For Alternative 5



### **2.1.3.6 Potential Construction Scenario for Alternative 5**

Alternative 5 would be a two-span, CIP, prestressed concrete box girder superstructure, supported on a CIP split arch substructure. The arched substructure was selected to minimize impacts to Waters of the United States by keeping the footings above the ordinary high water mark (OHWM). The arch would be supported on spread or pile footings. The bridge abutments would be seat-type supported on spread or pile footings and located near the top of the canyon.

The CIP concrete process for building the proposed bridge for Alternative 5 would require the contractor to excavate footings, place shoring, construct piles, build falsework and formwork, place reinforcing steel and pour concrete. The falsework would be removed once the concrete obtains the required strength and the prestressing operation is complete.

Construction access to the canyon bottom and all bridge support locations would be required for the duration of construction of proposed Alternative 5. The type of construction access available to the contractor will affect the cost and schedule of the project. The contractor would also need storage and parking areas outside of the main channel near the approach roadways to store and deliver materials and equipment to the construction areas.

The following is a possible construction scenario for constructing the new bridge across the Bear Creek Canyon using a CIP construction method:

- Mobilize the contractor's personnel and equipment;
- Clear, grub and excavate the eastern and western roadway embankments;
- Construct access to the site;
- Excavate or blast for the abutments and arch footings;
- Provide shoring or cut the slopes back in the excavated areas;
- Construct piles at abutments and arch footings (if needed);
- Place reinforcing steel in the abutment and arch footings and pour, place and finish the concrete;
- Place falsework and forms for the abutments, wingwalls, and arch substructure;
- Place reinforcing steel, pour and finish concrete for the abutments and arch span;
- Strip falsework and forms from the abutment, wingwalls and arch span;
- Construct the isolation devices at the top of the arch span;
- Place falsework for construction of the superstructure;
- Place forms for superstructure;
- Place reinforcing steel, stressing ducts and place and finish concrete for superstructure;

- Stress the superstructure after the concrete has reached its design strength requirements;
- Remove the falsework for the superstructure;
- Construct bridge wingwalls and retaining walls;
- Construct barrier railings and joint seals;
- Complete final grading around the abutment and arch footings;
- Remove construction access to the site;
- Mitigate all affected areas as required in mitigation and monitoring agreements associated with Alternative 5 described within this document; and
- Remove existing bridge

This construction sequence is not mandatory, and should not be interpreted as such. It is only for the reader's reference to provide an idea of the type of construction staging that could take place when constructing this alternative. Areas that are proposed by the Department for construction storage/staging for this alternative are shown in 2-7.

#### **2.1.3.7 Range of Construction Access Alternatives**

Construction access to the bridge site would be required to deliver personnel, equipment, and materials. Construction access would be configured in a way that allows the contractor access to the canyon bottom, all support locations and the approach embankments. A range of possible construction alternatives investigated by the Department included the following: access roads, temporary trestle, tower cranes and/or a cableway system. Based on consultation with the USFS and the relatively undisturbed condition of the environment in Bear Creek Canyon, all construction access alternatives were eliminated from further analysis with the exception of the trestle/tower crane combination and trestle only. A description of how these access alternatives would be used is provided below. All construction impacts for Alternative 5 would take place within the construction impact area identified in Figure 2-12. No construction equipment or activities would be allowed within the environmentally sensitive area (ESA) adjacent to Bear Creek (see Figure 2-12). Construction impacts and any construction impact mitigation are discussed in Chapter 3.



Figure 2-12: Alternative 5 Construction Impact Area



### **Construct Trestle Only Across the Canyon:**

A trestle (temporary bridge) would be designed and built by the contractor. The trestle would start near the turnout shown in Figure 2-3 and end near the east support locations. The contractor may choose to build one continuous trestle or two separate trestles (on both the east and west sides of Bear Creek). The trestle would provide adequate access to the construction work areas on both sides of the canyon. The trestle alignment, location, deck elevation, number of spans, falsework bent arrangement, construction sequence, and foundation type would be determined by the contractor and approved by the Department and USFS. Any trestle configuration proposed by the contractor will span the 12-meter (40-foot) wide Bear Creek ESA. Additionally, through consultation with the USFS it was determined the trestle should not exceed 12 meters (40 feet) in width.

The trestle would be built within a temporary construction easement authorized by the USFS. The construction impact area identified in Figure 2-12 would be large enough to accommodate all construction activities.

The trestle superstructure would likely consist of I-beam floor beams, stringers and timber beams for the deck. The trestle bents would likely be steel pipe columns supported on pads or cast in drilled hole (CIDH) piles.

The trestle abutment would be constructed first, then a trestle bent, followed by the trestle superstructure. The contractor would proceed over the completed section of the trestle to construct the next bent. This sequence would continue until the trestle is completed. The trestle would be utilized to deliver and store materials and equipment for construction of the proposed bridge for Alternative 5. The trestle would be designed to accommodate heavy loads (cranes, concrete trucks, etc.) and have netting or other features to prevent materials from entering Bear Creek.

### **Construct Tower Cranes On Both Sides of the Canyon:**

Since Bear Creek Canyon is over 150 meters (500 feet) wide, a single tower crane would not reach both sides of the canyon. Tower cranes would be utilized to lower and pick up heavy equipment (excavating equipment, cranes, concrete trucks and concrete pumps and other construction material) at the work site.

The following is a range of options that would be available to the contractor using tower cranes:

**Use of tower crane:**

**Option 1:** The tower cranes would be assembled on each side of the SR-18 roadway embankments with temporary platforms cut into the existing slopes at about mid-height of the slopes. The tower cranes would be used to deliver materials to temporary platforms or a trestle (as discussed above). The contractor would use a mobile crane that would operate between the temporary platforms to deliver material to the bridge work areas. The contractor would need a storage area at the approach roadway elevation for the loading and unloading of construction materials. The back-span of the tower crane may require lane closures. Any lane closures would be restricted to non-commute times during weekdays.

**Option 2:** The contractor would assemble the tower cranes at the middle of the existing roadway slopes and build a trestle from the roadway embankment to the tower cranes. The contractor would then use a mobile crane to operate between the tower cranes to deliver materials to the bridge site. A temporary staging area for the cranes' operations would be required; however, lane closures would not be required since a portion of the trestle would be used for the staging area and the tower cranes would be away from the traffic lanes.

**Operational Access Subsequent to Construction:**

Operational access would also be required for Alternative 5. The operational access would be similar to what is described for Alternative 4 in Section 2.1.2.7.

**Removal of the Existing Bridge**

Removal of the existing bridge would also occur subsequent to construction of Alternative 5. The removal of the existing bridge would be completed in the same manner as previously described in Section 2.1.2.7

**2.1.4 Transportation Systems Management**

Due to the nature of the proposed action (replacement of Bridge no. 54-0310) and the need of the project previously identified, the development of a Transportation System Management (TSM) Alternative or Modal Alternative is not appropriate. Typically, TSM alternatives are developed for major projects proposed to alleviate traffic congestion and maximize the efficiency of the present transportation system in urbanized areas with a population exceeding 200,000 people. Also, rail is not an option



since rail infrastructure does not exist in the immediate project area. If transit were an available alternative, it would not alleviate the need to replace the existing bridge. Therefore, these alternatives have not been evaluated in this DEIS/R.

In December 1996, a study was completed called the “Big Bear Enhanced Ground Access Feasibility Study” for the city of Big Bear Lake and San Bernardino Associated Governments (SANBAG). The purpose was to build on past findings and to provide a more detailed evaluation of both highway and non-highway transportation alternatives for improving access between the San Bernardino valley and the Big Bear valley recreation areas. Preliminary candidate corridors were evaluated as well as four different types of transit technologies including Aerobus and Monorail systems. The city of Big Bear Lake and SANBAG reviewed the study and a Final Highway/Transit Improvement Alternative Report was prepared and recommended improvements to the existing SR-18 and SR-330 only.

## **2.2 Alternatives Considered and Withdrawn**

In addition to the proposed build alternatives evaluated in detail in this DEIS/R, other alternatives were also considered; however, all other alternatives analyzed for this project have been withdrawn from consideration and the rationale for their withdrawal is provided below.

### **2.2.1 Alternative Variations Presented During Scoping Process**

As discussed in Chapter 6 (Comments and Coordination), an agency and public scoping process was initiated by the Department in April 1990 to solicit input on proposed alternatives for this project. The proposed alternatives presented during the scoping process are different from those presented as the build alternatives within this document. After the scoping process was finished, comments and concerns from the scoping process were incorporated into the planning process. Project modifications resulting from the scoping process resulted in the withdrawal of Alternatives 2 and 3 from further consideration, modification of the alignment of Alternative 4, and extension of the project limits of Alternative 5 to include realignment of the first curve east of the Big Bear dam. The alternatives withdrawn from detailed analysis are discussed below.

### **2.2.2 Alternative 2: New Bridge On or Over Big Bear Dam**

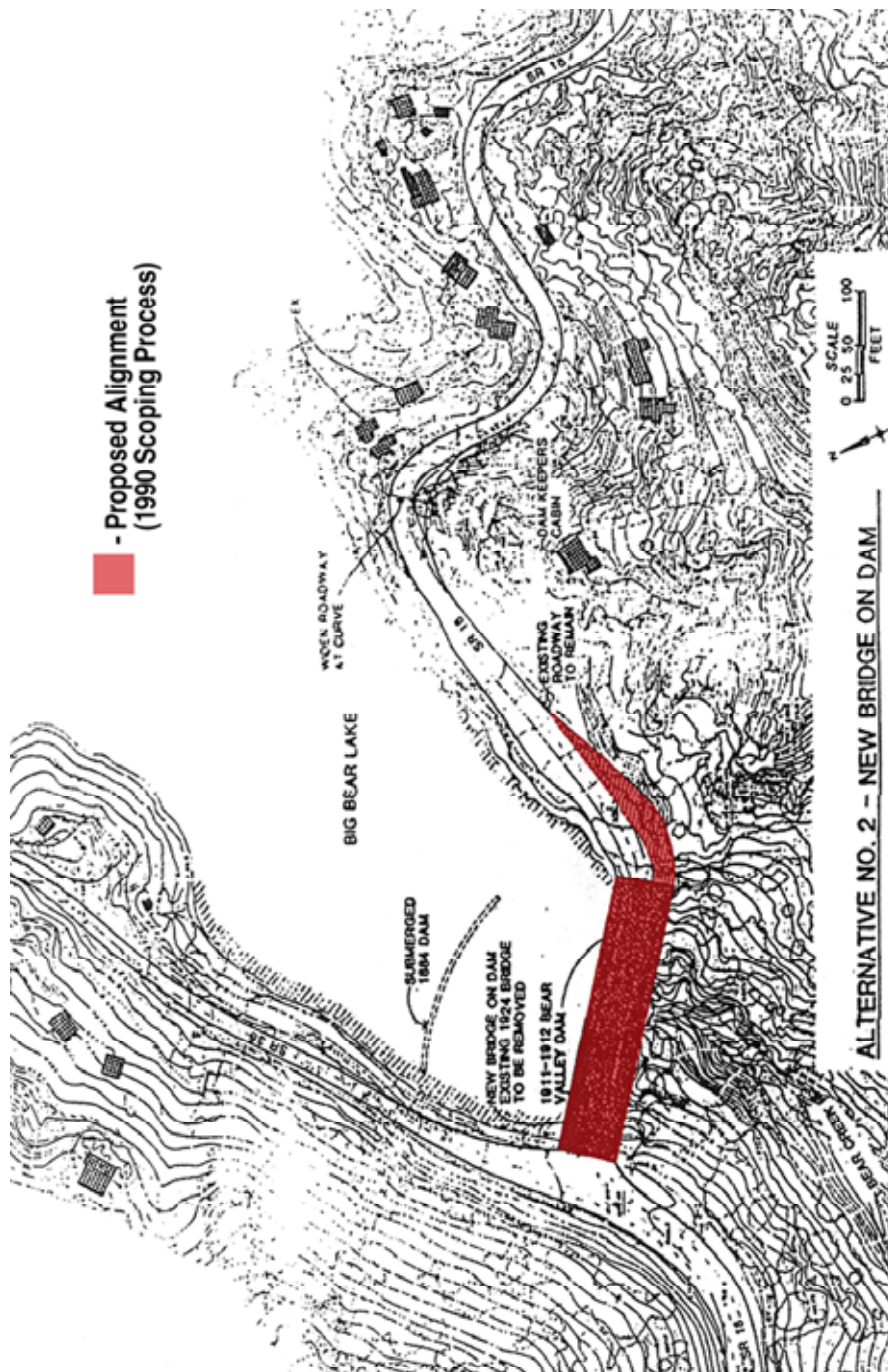
This alternative (see Figure 2-13) proposed to build a new bridge on the existing roadway alignment on or over the dam. Alternative 2 would require the approach roadway elevations to be raised to meet the new bridge elevation. As part of this alternative, the first curve on the eastern approach roadway would have had its curve radius increased, resulting in a flatter and less severe curve.

The Department's Division of Structures determined a new bridge could not be placed on the dam since the quality of the dam's concrete is difficult to assess and may be non-uniform throughout. Placement of a structure supported by the dam would also lessen the ability of the dam to sustain loads introduced in a seismic event.

Aesthetics of the bridge elevated over the dam was also of concern. Since the new bridge cannot be supported by the dam, the bridge would require a 5.5-meter (18-foot) structure depth, and the bottom of the deck would be located 5.2 meters (17 feet) above the top of the dam to provide clearance for the proposed floodgates. The bridge would require a massive support structure, extensive approach modifications on both sides of the canyon, excavation quantities much greater than the proposed build alternatives, and a substantial use of the historic Dam Keeper's House Property (DKP; see Section 3.9 Cultural Resources).

Finally, the city of Big Bear Lake Fire Department, California Highway Patrol and San Bernardino County Sheriff's Department indicated total closure of the bridge during construction of this alternative would have an adverse effect on their service levels and response times. Closure of the bridge would also adversely affect circulation patterns within the Big Bear Valley. Based on the potential adverse effects and the estimated cost of construction (approximately \$35 million in 2002 [Friedman, 2003]), Alternative 2 was withdrawn from further consideration and analysis.

**Figure 2-13: Scoping Alternative 2**

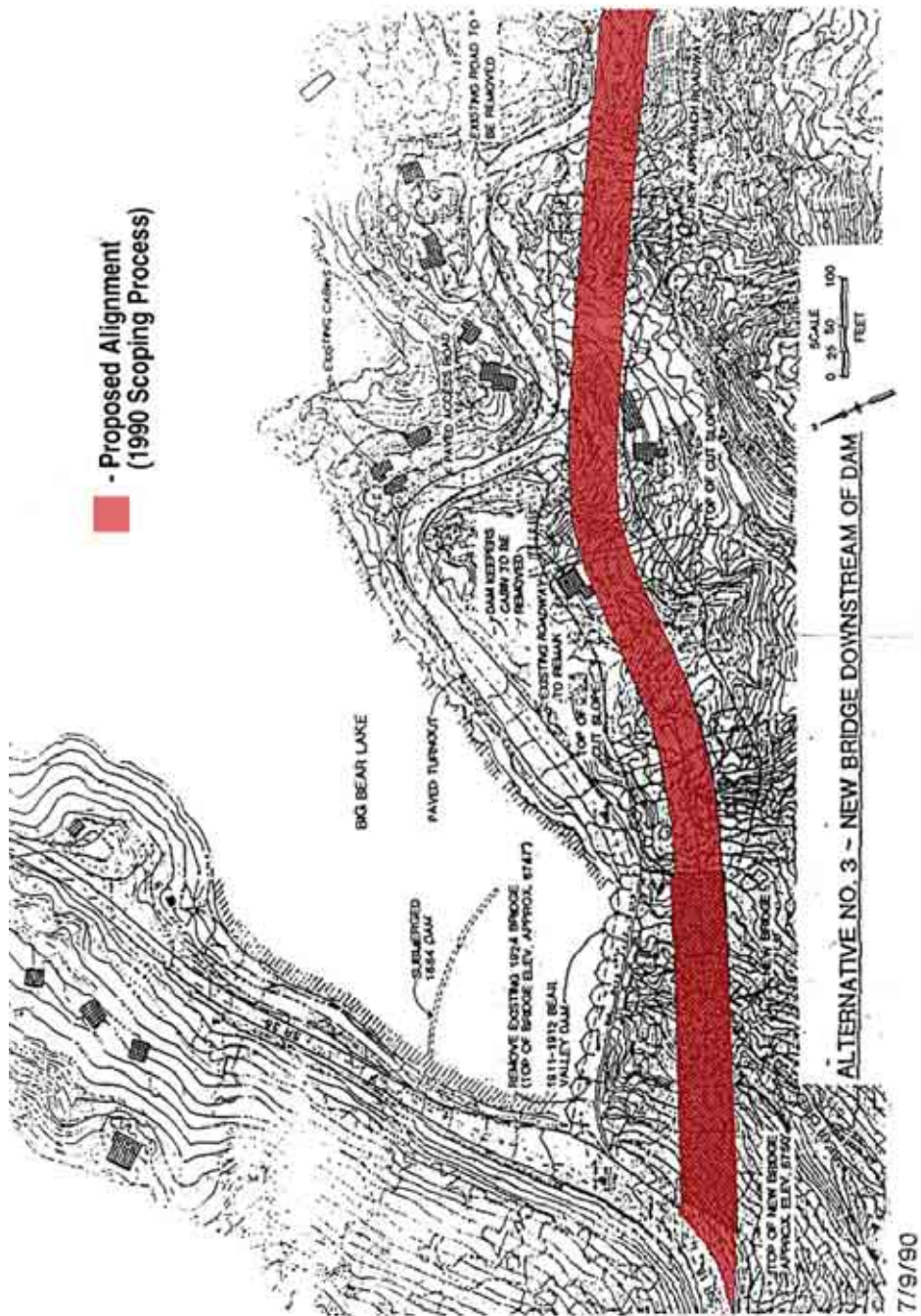


### **2.2.3 Alternative 3: New Bridge Across Canyon and SR-18 Realignment**

Alternative 3 (see Figure 2-14) would have severed access to USFS recreational residence lease properties as well as bisected the historic Dam Keeper's House Property (DKP; see Section 3.9 Cultural Resources and Figure 3-25). Alternative 3 would have resulted in a direct take of approximately 50 percent of the DKP, as well as removal/relocation of the Dam Keeper's House. This alternative does not avoid or minimize impacts to National Register of Historic Places (NRHP) eligible properties. This alternative would have substantially altered this resource.

Also, with the extensive cuts through the mountainside, Alternative 3 would generate 74,000 cubic meters (96,000 cubic yards) of excess material and result in a substantial degradation to the visual qualities due to the increase in elevation of the cut slope which would be seen from much greater distances around the lake. This alternative also would require removal of more bald eagle habitat and encroachment into the night roost area, and permanent removal of a much greater amount of natural geologic substructure than either of the remaining build alternatives. Alternative 3 provides no additional benefit when compared to the proposed build alternatives that would offset the extensive impacts to historic, visual, biological and geological resources within the project area. Based on the potential adverse effects associated with Alternative 3 this alternative was withdrawn from further consideration and analysis.

### Figure 2-14: Scoping Alternative 3



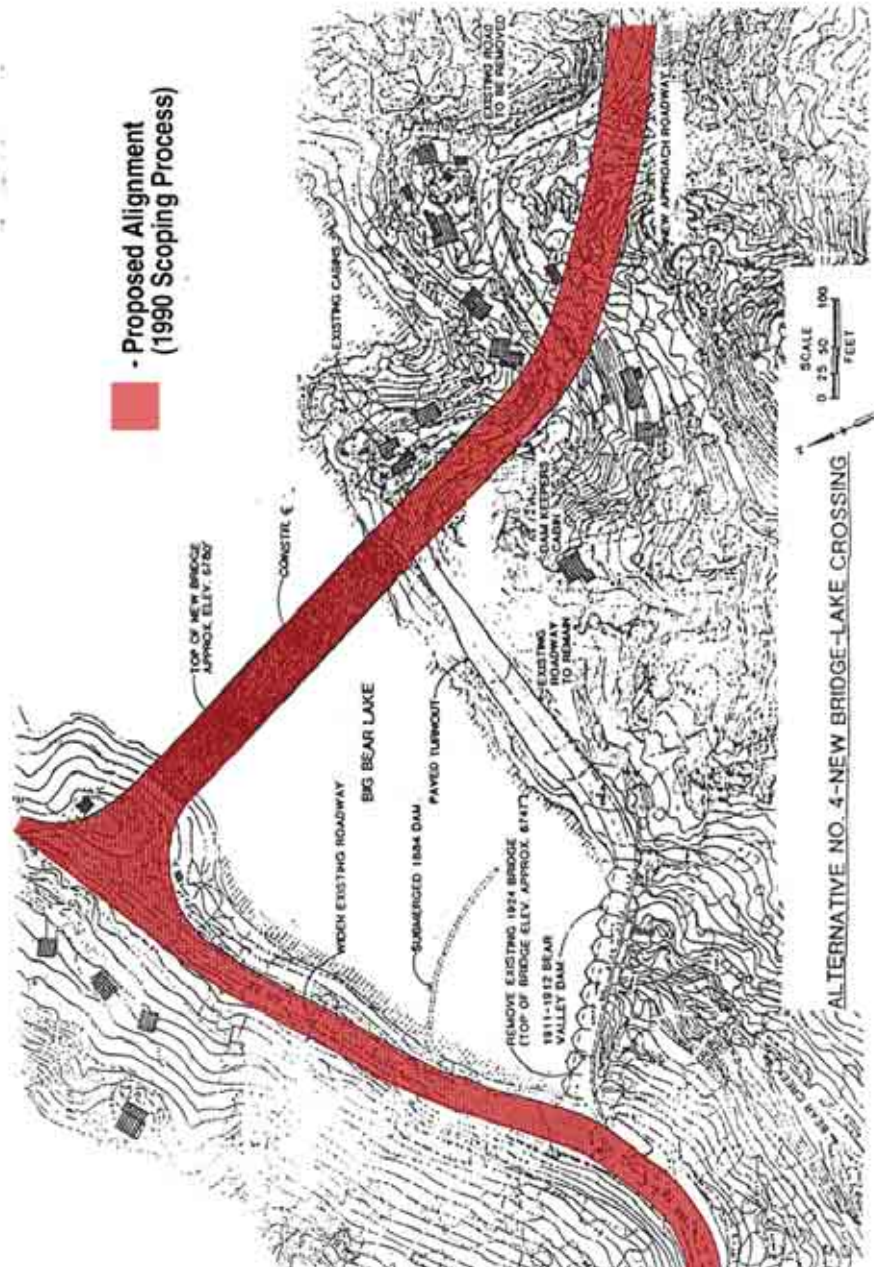
#### **2.2.4 Alternative 4 (1990): Bridge Across Big Bear Lake**

Alternative 4 as it was originally proposed (see Figure 2-15) would have crossed the lake approximately 198 meters (650 feet) northeast of the dam. This is approximately 76 meters (250 feet) further to the northeast than the proposed build Alternative 4. Additionally, the realignment of SR-18 was proposed to include approximately 250 meters (800 feet) of new roadway, all within the Big Bear Lake Southwest Shore Historic District (SSHD; see Section 3.9 Cultural Resources) before reconnecting with existing SR-18. This alternative would have improved the curve radius and sight distance at the first curve east of the dam; however, it would have had adverse topographical and visual impacts associated with its large excavation quantities and materially altered the physical characteristics of the SSHD by transforming its rural and historic character by bringing the transportation element into and through the historic district resulting in the removal/relocation of several of the cabins within the NRHP eligible property. This alternative would not have avoided or minimized impacts to NRHP eligible properties and was withdrawn from further consideration and analysis.

This alternative was subsequently revised to cross the lake 122 meters (400 feet) northeast of the dam and immediately connecting to SR-18 at the first curve to the east of the dam (see Section 2.1.2 and Figure 2-2).



Figure 2-15: Scoping Alternative 4(1990)

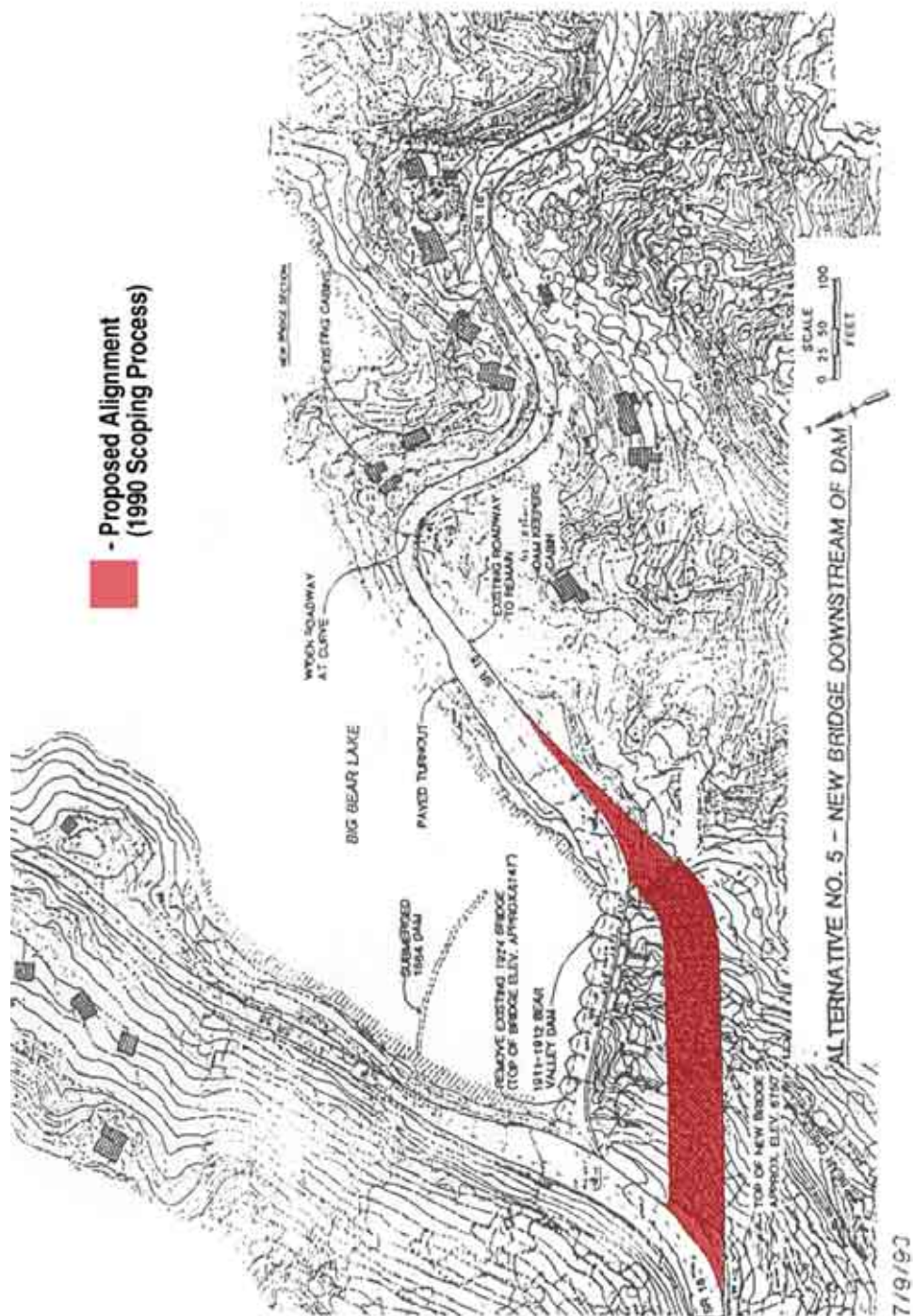


### **2.2.5 Alternative 5 (1990): Bridge Across Canyon**

Subsequent to compiling agency and public scoping comments, the Department determined the first curve east of the dam needed to be realigned to improve sight distance and enhance safety. Figure 2-16 was completed prior to the identification of the need for the improvements to the curve that does not meet the Department's design standards for either curve radius or sight distance. Alternative 5 was modified to include the realignment of the curve while increasing the curve radius.



Figure 2-16: Scoping Alternative 5 (1990)



### **2.2.6 Removal of the Existing Bridge with no Replacement**

This alternative would have permanently removed the bridge from the state transportation system. Although removing the existing bridge with no replacement would allow the BBMWD to complete spillway and outlet works improvements, it would require residents and visitors to use an alternate route to reach the south side of the lake (SR-38 east around the north-shore to Stanfield Cutoff or SR-38 west from the Mentone area near Interstate 10; see Figure 2-4) and would result in a substantial increase in vehicle miles and gas consumption for commuters and recreational users (see section 2.1.1 and Figure 2-4). This alternative would also have adverse impacts on emergency vehicle response times and eliminates an emergency evacuation route for residents and visitors within the project vicinity. This alternative would not meet the project's purpose and need (See Chapter 1) because it would not provide efficient access across Big Bear Lake and Bear Creek. Additionally this Alternative would sever SR-18 route continuity and have a negative impact on local circulation and emergency evacuation.



# **Chapter 3**      Affected Environment, Environmental Consequences, and Compensation Measures

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## ***Human Environment***

### **3.1 Land Use**

#### **3.1.1 Regulatory Setting**

Three entities regulate land use planning in the region: United States Forest Service (USFS), San Bernardino County, and the city of Big Bear Lake (see Figure 3-1).

The San Bernardino County General Plan governs land use within the unincorporated areas of San Bernardino County. The proposed project is within the Mountain Subregion of the County's General Plan and entirely within the San Bernardino National Forest (SBNF). The Mountain Subregion covers 225,300 hectares (556,700 acres). Of this area, approximately 185,500 hectares (457,600 acres) are managed by State and Federal agencies, principally the USFS. The county general plan applies to all private land not within a city's specific plan and unincorporated land within San Bernardino County (SBC, 1999). The general plan update process began in 2003 and is expected to take approximately 3 years (SBC, 1999).

Land use within the SBNF is governed by the San Bernardino National Forest Land and Resource Management Plan. Preparation of a Forest Plan is required by the Forest and Rangeland Renewable Resources Planning Act, as amended by the National Forest Management Act. Environmental impacts of the plan have been evaluated in an Environmental Impact Statement as required by NEPA. The SBNF encompasses 331,400 hectares (819,000 acres) of which 65,100 hectares (160,800 acres) are owned by private entities, as well as county, state and other federal agencies. The plan establishes the management direction and associated long-range planning goals and objectives for the SBNF and is renewed and updated as necessary every ten to fifteen years. The most current Forest Plan is dated 1988. The Record of Decision for this EIS was signed on January 27, 1989. The management plan is further divided into management areas, of which the proposed project is within the Big Bear management area. The SBNF Land and Resource Management Plan applies to all lands administered by the USFS within the San Bernardino National Forest (USFS, 1988). Currently, the USFS is revising their management plan as required in

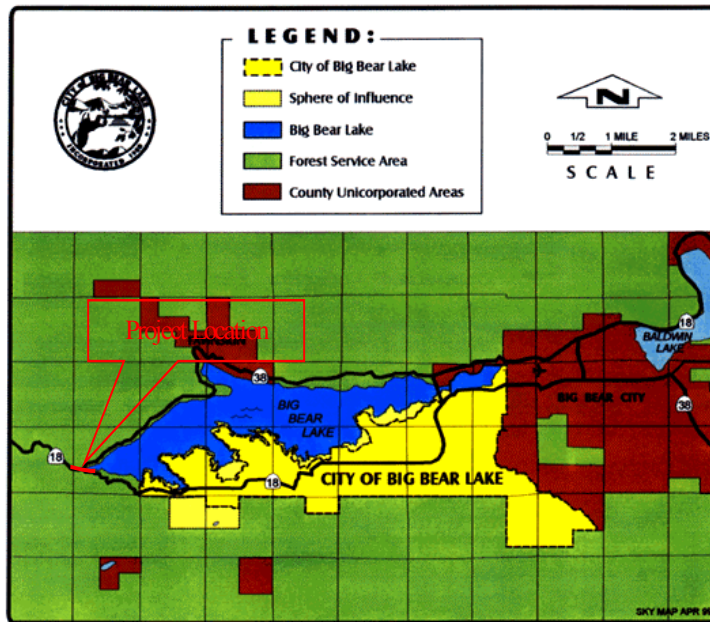
the settlement of a 1999 lawsuit filed by the Center for Biological Diversity. The new draft management plan was submitted for public comment. The 90-day public comment period began August 11, 2004. Subsequent to approval of the SBNF management plan, the new plan will be reviewed and incorporated into the FEIS/R for the Big Bear Lake bridge replacement project as appropriate.

The USFS is a cooperating agency under NEPA (see Appendix B) and the proposed project is entirely on lands administered by the USFS. The project will require a USFS transportation easement, which will require a temporary use permit. A temporary use permit will require a NEPA finding by the USFS regarding the proposed project. The USFS can either adopt the Department's NEPA document or complete their own NEPA finding if necessary.

The city of Big Bear Lake manages land use within the city limits and sphere of influence in accordance with its general plan. The city's location adjacent to USFS administered land poses both challenges and opportunities for the city. Federal lands are being preserved as public open space with only limited development; however, it is this open space that provides scenic beauty and recreational opportunity that characterizes the city of Big Bear Lake. The city has taken no action to expand its sphere of influence and has no plans to do so. The General Plan for the city of Big Bear Lake was adopted by the City Council in August 1999 (CBBL, 1999).

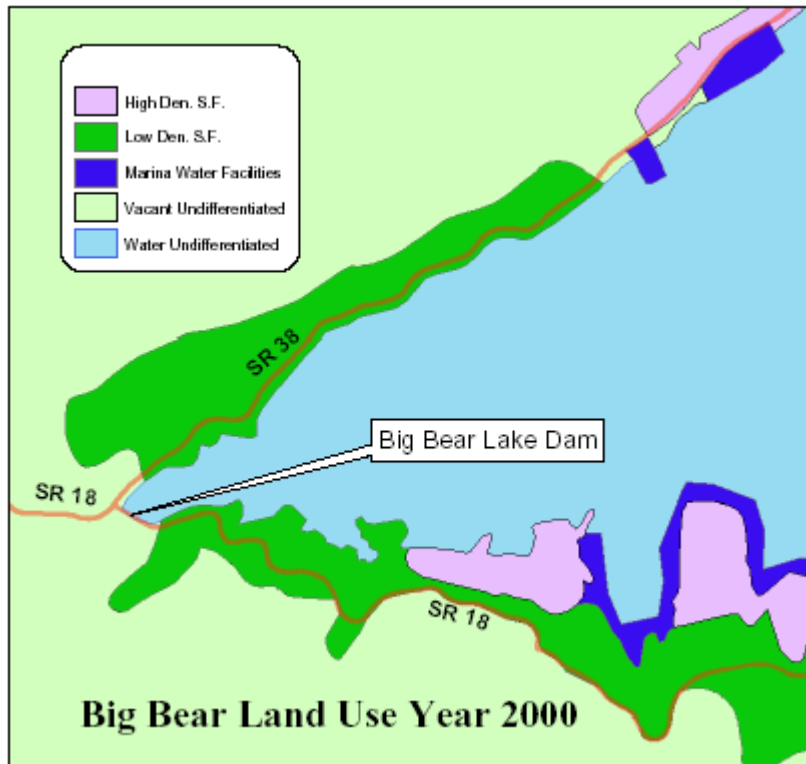
Figure 3-1 identifies the jurisdictional areas of the three planning entities discussed above within the project vicinity. Figure 3-2 shows the existing land uses within the project vicinity (Big Bear Valley).

Figure 3-1: Jurisdictional Planning Areas



Source: CBBL, 1999

Figure 3-2: Existing Land Use



Source: Year 2000 Land Use Data from SANBAG

### 3.1.2 Affected Environment

#### 3.1.2.1 San Bernardino National Forest

All lands within a radius of slightly less than 1.6 kilometers (1 mile) of the project area consist entirely of publicly owned lands administered by the USFS and Big Bear Lake itself (city of Big Bear Lake westerly sphere of influence boundary is slightly less than 1.6 kilometers [1 mile] east of the project area). Land uses within the proposed project area are recreational, transportation (highway) and USFS residential (USFS recreational cabins). Other than for recreational purposes, USFS policy does not readily approve of private development within SBNF other than through land swaps that allow the USFS to acquire lands of high biological, recreational, historic value or other land uses that are critical to the USFS implementation of its Land and Resource Management Plan.

All land uses potentially affected by the proposed project (i.e. conversion from open space to state highway) are on lands administered by USFS. USFS land use planning policy is managed in accordance with management emphasis zones. The project is within and adjacent to four management emphasis zones which are described below:

- **Watershed:** Manage to maintain and enhance watershed integrity, to protect onsite and downstream values and sustained land productivity. Emphasize non-motorized recreation activities such as hiking and equestrian use;
- **Wildlife:** Manage for an intensive resource program with emphasis on wildlife habitat improvement for emphasis species. Provide for recreation use compatible with and in support of the wildlife emphasis;
- **Watershed/Wildlife:** Manage to maintain or enhance watershed integrity and health through an active sediment management program. Provide for high levels of habitat for emphasis species through vegetation management activities, in-stream improvements for fisheries and other habitat improvements. Emphasize a variety of recreation activities to be compatible with watershed and fish and wildlife objectives; and
- **Custodial:** Manage to provide protection of existing facilities and resources. Conduct projects and vegetation management activities to provide for protection and to maintain or improve habitat conditions for sensitive, rare, threatened and endangered species and other wildlife.

Development of USFS land is authorized through a special use permit. Permitted uses are authorized by specific laws and regulations and include boat ramps, recreational cabins, transportation easements, etc. All special use permits require extensive analysis by the USFS in accordance with NEPA and USFS policy.

Land use within the project area has been virtually unchanged for many years. Some modifications have been made to USFS recreational residence cabins; however, no new cabins have been built in over 20 years. The recreational lease cabins within the area are authorized through USFS special use permits. The USFS service has no plans to issue additional special use permits for recreational residences within the project area at this time.

The USFS is a cooperating agency under NEPA for the proposed project. The proposed project will be completed in accordance with USFS policy. The proposed project does not facilitate any additional changes in land use planning outside of the lands required for the proposed project and its transportation needs. The USFS lands necessary for the proposed project (0.4 hectare [1 acre]) would be converted to transportation use from open space and incorporated into the special use permit for the State highway transportation easement. There would not be any additional permanent impacts to land uses associated with the proposed project that would be incompatible with the management emphasis of the USFS. The proposed project is consistent with the USFS Land and Resource Management Plan.

#### **3.1.2.2 San Bernardino County, Bear Valley and City of Big Bear Lake**

The project would not affect either the County's unincorporated areas or the city of Big Bear Lake or its sphere of influence. The proposed project would not place any restrictions or requirements on the County or the city of Big Bear Lake that would facilitate changes in land use planning objectives.

The proposed project is consistent with the land use elements of the San Bernardino County General Plan and the city of Big Bear Lake general plan.



### **3.1.3 Permanent Impacts**

With either of the proposed build alternatives, some land use would be converted from open space to transportation. Subsequent to issuing a ROD for the proposed project and obtaining project approval from the USFS, the transportation easement from the USFS would be modified to incorporate the proposed project.

#### **No Action/No Build Alternative**

The No Action/No Build Alternative would have no permanent impact on land-use.

#### **Alternative 4**

Alternative 4 would permanently convert 0.32 hectares (0.8 acres) from open space to transportation.

#### **Alternative 5**

Alternative 5 would permanently convert 0.39 hectares (1.0 acres) from open space to transportation.

### **3.1.4 Temporary Impacts**

All temporary impacts associated with the proposed project are associated with the proposed equipment storage/construction staging area. Alternative 4 would require a temporary land use change of approximately 0.2 hectare (0.5 acres) from open space/recreation to equipment storage/construction staging area (see Figure 2-8). Subsequent to completion of the proposed project, the areas will be restored and would again function as open space/recreation.

### **3.1.5 Avoidance, Minimization and Compensation Measures**

The proposed project minimizes impacts related to land use by limiting the scope of the proposed project to bridge replacement and improvement of the approach roadways only. There are no plans to widen or realign roads outside of the project area within the planning horizon (20+ years). No mitigation is required for land use conversion associated with the alternatives for the proposed project; however, the abandoned portions of the existing roadway resulting from either of the proposed alternatives would be relinquished to the USFS and could be improved for use as parking for visitors and fishing near the dam.

## **3.2 Growth**

### **3.2.1 Regulatory Setting**

The Council on Environmental Quality (CEQ) regulations, which implement NEPA of 1969, requires evaluation of the potential environmental consequences of all proposed Federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, all elements of growth.

The California Environmental Quality Act also requires analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), requires environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

### **3.2.2 Affected Environment**

As a weekend resort destination centered on tourism, Bear Valley has a high percentage of vacant housing units for seasonal, recreational and occasional use. The weekend population of the Bear Valley commonly increases by 50,000 people. However, the population of the city of Big Bear Lake has remained relatively stable compared to the population of the County's unincorporated areas. Table 3-1 shows the most recent housing trend data for San Bernardino County and its census county divisions (CCD) and census designated places (CDP). Table 3-2 shows the population trends of these areas.

**Table 3-1: Housing Statistics**

GEOGRAPHIC AREA	OCCUPIED HOUSING UNITS		VACANT HOUSING UNITS				VACANCY RATE	
	TOTAL HOUSING UNITS	OCCUPIED HOUSING UNITS	TOTAL	PERCENT			PERCENT	
				FOR SALE ONLY	FOR RENT	SEAS., REC., OR OCC. USE	HOME-OWNER	RENTAL
<b>San Bernardino County</b>	601,369	528,594	72,775	14.9	20.2	43.5	3.1	7.3
<b>COUNTY SUBDIVISION AND PLACE</b>								
<b>Big Bear CCD (Bear Valley)</b>	27,454	9,993	<b>17,461</b>	2.7	1.6	<b>90.2</b>	6.2	8.9
<b>Big Bear Lake CDP</b>	4,801	2,290	<b>2,511</b>	3.4	1.7	<b>91.2</b>	5.0	6.2
<b>Big Bear Lake City</b>	8,705	2,343	<b>6,362</b>	2.1	2.7	<b>86.9</b>	8.3	16.6
<b>Running Springs CDP</b>	3,686	1,903	<b>1,783</b>	4.3	0.7	<b>91.3</b>	5.0	2.7
<b>Remainder of Big Bear CCD*</b>	10,262	3,457	<b>6,805</b>	2.5	0.8	<b>92.7</b>	6.3	5.5

■ *Table 4: General Housing Characteristics: 2000.* Source: Census, 2000

\*Project area included within "Remainder of Big Bear CCD".

**Table 3-2: Population Trends 1980-2000**

	1980	1990	2000	ANNUAL COMPOUND GROWTH 1990—2000
City of Big Bear Lake	4,900	5,351	5,438	<b>0.16%</b>
Big Bear Valley	11,928	15,665	18,778	<b>1.81%</b>
San Bernardino County	871,800	1,418,380	1,709,434	<b>1.87%</b>

■ *Table 2: Actual Population Growth 1980—2000.* Source: Census, 2000.

The proposed project would provide a long-term crossing of Bear Creek/Big Bear Lake that would improve the traffic operational characteristics of the immediate project area. The project would minimize localized delays at the intersection of SR-18 and SR-38 by introducing an additional lane in the westbound direction and a traffic signal at the intersection. The signalization of the SR-18/SR-38 intersection would minimize the formation of lengthy traffic buildup at the intersection during peak traffic demand periods. Improving the localized operational characteristics of the intersection would not increase the route capacity or facilitate growth within surrounding communities or within USFS lands. State Route 18 and SR-38 would not change outside the project limits; therefore, the project would not support/promote increased growth or development in the region.

In accordance with the Department's "Growth Inducement Checklist", the project **WOULD NOT**:

- Attract more residential development or new population into the community or planning area;
- Encourage the development of more acreage of employment generating land uses in the area;
- Lead to the increase in roadways, intersections, sewer, water supply or drainage capacity;
- Encourage the rezoning or reclassification of lands in the USFS land and resource management plan or City or County general plans from agriculture, open space or low density residential to a more intensive land use;
- Lead to the intensification of development densities, accelerate the schedule for development, facilitate action by private interests to redevelop properties within 3.2 kilometers (2 miles) of an existing or future major arterial roadway or other within 6.4 kilometers (4 miles) of a limited access highway interchange;
- Decrease home to work commuter travel times to and from or within the project area by 10% or in excess of 5 minutes total; or
- Generate cumulative growth inducing effects as defined by CEQA guidelines.

Environmental Handbook Volume 8 Community Impact Assessment	
<b>GROWTH INDUCEMENT CHECKLIST</b>	
1. a) Will the project attract more residential development or new population into the community or planning area? b) If yes, would it be higher than is projected in the local general plan?	
2. a) Will the project encourage the development of more acreage of employment generating land uses in the area (such as commercial, industrial or office)? b) If yes, would it be beyond that which is designated in the current local general plan?	
3. a) Will the project lead to the increase of roadway, intersection, sewer, water supply, or drainage capacity? b) If yes, would it be beyond that projected or planned for in the local general plan?	
4. Will the project encourage the rezoning or reclassification of lands in the community general plan from agriculture, open space or low density residential to a more intensive land use?	
5. Is the project not in conformance with the growth related policies, goals or objectives of the local general plan or the area growth management plan? Or, is it in conflict with implementation measures contained in the area's growth management plan?	
6. Will the project lead to the intensification of development densities or accelerate the schedule for development or will it facilitate actions by private interests to redevelop properties within two miles of an existing or future major arterial roadway or within four miles of a limited access highway interchange?	
7. Will the project measurably and significantly decrease home to work commuter travel times to and from or within the project area (more than 10% overall reduction or five minutes or more in commute time savings)?	
8. Is the project directly related to the generation of cumulative effects as defined by CEQA guidelines?	

The proposed project is in conformance with growth related policies of the USFS Land and Resource Management Plan and the general plans of San Bernardino County and city of Big Bear Lake.

### 3.2.3 Permanent Impacts

#### No Action/No Build, Alternative 4 and Alternative 5

Completion of either of the proposed build alternatives will not induce growth or have any permanent growth inducing impacts.

### **3.2.4 Temporary Impacts**

#### **No Action/No Build, Alternative 4 and Alternative 5**

Completion of either of the proposed build alternatives will not induce growth or have any temporary growth inducing impacts.

### **3.2.5 Avoidance, Minimization & Compensation Measures**

The project is not growth inducing. No minimization or compensation measures are required.

## **3.3 Farmlands/Agricultural Lands**

### **3.3.1 Regulatory Setting**

National Environmental Policy Act and the Farmland Protection Policy Act (FPPA, USC 4201-4209; and its regulations, 7 CFR Ch. VI Part 658), require federal agencies, such as FHWA, to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. The land does not currently have to be used for cropland. It can be forestland, pastureland, cropland, or other land, but not water or urban developed land.

California Environmental Quality Act requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners, through reduced property taxes, to deter the early conversion of agricultural and open space lands to other uses.

### **3.3.2 Affected Environment**

The project area, as well as the project vicinity, is not within any area designated as prime or unique farm or agricultural lands. The Department submitted the farmland conversion impact rating form (form AD-1006) on July 1, 2003, and was evaluated by the Natural Resource Conservation Service on July 9, 2003. The NRCS indicated the site does not contain prime, unique, statewide or locally important farmland. Therefore, the proposed project is exempt from the FPPA.

### **3.3.3 Permanent Impacts**

#### **No Action / No Build, Alternative 4 and Alternative 5**

No prime, unique, statewide, or locally important farmlands would be affected by the proposed project. There are no impacts to farm or agricultural lands.

### **3.3.4 Temporary Impacts**

#### **No Action / No Build, Alternative 4 and Alternative 5**

No prime, unique, statewide, or locally important farmlands would be affected by the proposed project. There are no impacts to farm or agricultural lands.

### **3.3.5 Avoidance, Minimization and Compensation Measures**

The proposed project does not affect farm or agricultural lands and no minimization or compensation measures are required.

## **3.4 Community Impacts**

### **3.4.1 Regulatory Setting**

#### **3.4.1.1 Relocations**

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons do not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, et seq.). See Appendix D for a copy of the Department's Title VI Policy Statement.

#### **3.4.1.2 Community Character & Cohesion**

The National Environmental Policy Act of 1969 as amended, established that the federal government use all practicable means to assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. The Federal Highway Administration in its implementation of

NEPA [23 U.S.C. 109(h)] directs that final decisions regarding projects be made in the best overall public interest. This means taking into account adverse environmental impacts, including among others, destruction or disruption of man-made resources, community cohesion and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, changes to community character and cohesion are to be considered in assessing the project's effects.

#### **3.4.1.3 Environmental Justice**

All projects with federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William Clinton on February 11, 1994. Executive Order 12898 directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2002, the poverty line was \$18,404 annually for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is evident by its Title VI Policy Statement, signed by the Director, which can be found in Appendix D of this document.

#### **3.4.2 Affected Environment**

The proposed project is located approximately 1.6 kilometers (1 mile) west of the city of Big Bear Lake and 4 kilometers (2.5 miles) west of the unincorporated community of Fawnskin. The proposed project is adjacent to the Big Bear Lake Southwest Shore Historic District, which consists of seventy-seven recreational residences.

"Recreational residences are only for personal recreation use of a non-commercial nature by the holder, members of the holder's immediate family, and guests (FSH, 2000)." The recreational residences cannot be the leaseholders' primary residence. When approved in advance by the authorized officer, the permitted improvements may be rented for recreational use; however, if authorized, renting shall be limited to



no more than 14 days per year. The recreational residences are authorized under USFS special use permits (FSH, 2000). Multiple other recreational lease cabins authorized under USFS special use permits are scattered throughout and adjacent to the proposed project area.

No businesses or commercial developments are located within the project limits or within 0.8 kilometers (0.5 mile) of the proposed project. Figure 3-3 shows the project area (census block level) and Figure 3-4 shows the project vicinity (census tract level). Table 3-3 shows the ethnicity of the project area compared to the project vicinity and Table 3-4 shows the demographic characteristics of the project vicinity (data is not available to the census block level for the project area). Table 3-5 shows the housing statistics for the project area.

Figure 3-3: Project Area Census Blocks

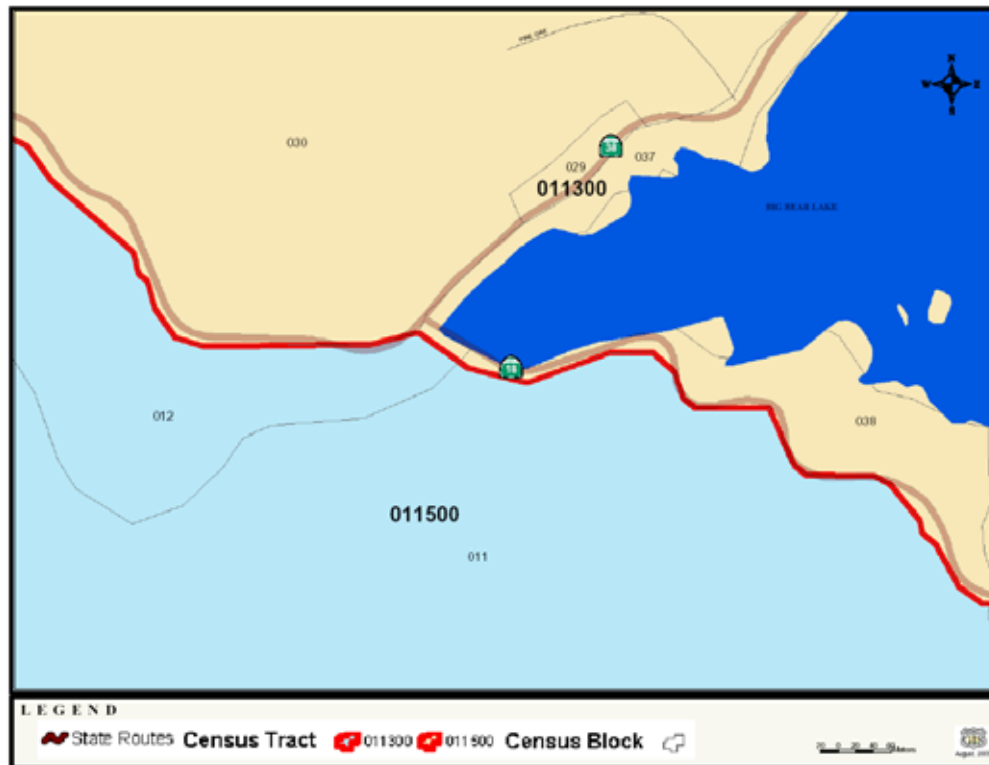
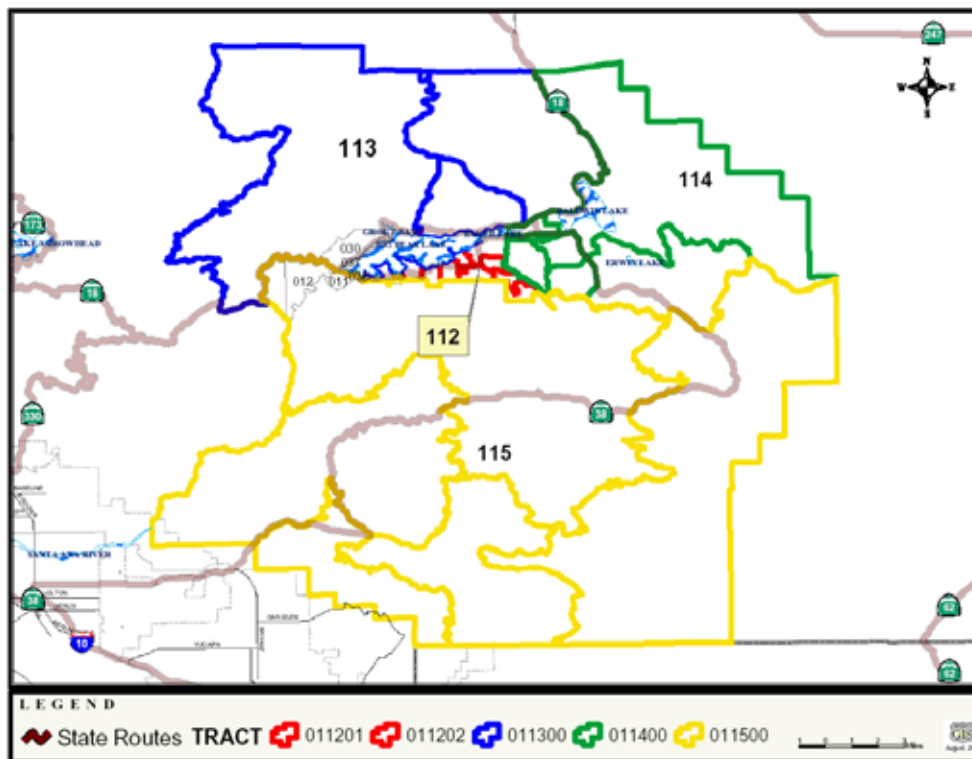


Figure 3-4: Project Vicinity Census Tracts



**Table 3-3: Ethnic Composition**

Bear Valley Communities (if any)	Census Tract	Population	White %	Black %	Native American %	Asian %	Other %	Hispanic or Latino %
Big Bear Lake	112.01	2878	86.7	0.2	0.6	0.8	2.6	9.1
	112.02	2611	75.9	1.2	0.8	0.7	2.6	18.8
Fawnskin, Big Bear City	113	1468	90.1	0.8	0.6	0.8	2.2	5.5
Big Bear City	114	10213	82.2	0.6	1.2	0.4	3.5	12.1
None	115	1656	80.0	0.2	1.0	0.6	9.7	8.5

Project Study Area (Tract/Block Group)	Census Block	Population	White %	Black %	Native American %	Asian %	Other %	Hispanic or Latino %
113/1	1029 1030 1037 1038	13	100	0	0	0	0	0
115/5 <sup>1</sup>	5011 5012	0	0	0	0	0	0	0

Source: Census, 2000

1. No population reported for census block group.

**Table 3-4: Demographic Variables**

Bear Valley Communities (if any)	Census Tract	Population	Median Household Income <sup>1</sup>	Percent Below Poverty Level <sup>2</sup>	Percent Disabled <sup>3</sup>
City of Big Bear Lake	112.01	2878	\$42,273	11.9	11
	112.02	2611	\$30,481	15.4	8
Fawnskin, Big Bear City	113	1468	\$45,982	6.9	11
Big Bear City	114	10213	\$35,073	11.5	9
None	115	1656	\$45,363	12.9	6
Source: Census, 2000					

1. Money is reported in 1999 dollars.

2. 2000 census uses 1999 DHHS poverty guidelines.

3. Disabled percentage represents physical disabilities only.

**Table 3-5: Census Block Housing Statistics**

Census Tract/Group	Census Block	Population	Housing Units (Occupied/Vacant) <sup>1</sup>	Total No of Households	Households (Ave. Size)
113/1	1029	0	8 (0/8)	0	0.00
	1030	11	143 (7/136)	7	1.57
	1037	0	2 (0/2)	0	0.00
	1038	2	17 (1/16)	1	2.00
115/5	5011	0	15 (0/15)	0	0.00
	5012	0	0 (0/0)	0	0.00
Source: Census, 2000					

<sup>1</sup> All occupied houses listed as owner occupied. All vacant houses listed as seasonal, recreational or occasional use.

### 3.4.3 Permanent Impacts

#### No Action/No Build, Alternative 4 and Alternative 5

None of the proposed project alternatives would require the relocation of any person, business or building. No relocation assistance will be required. Based on the 2000 Census data provided in Table 3-5, none of the proposed alternatives would result in the destruction or disruption of: man-made resources, community cohesion, or availability of public facilities and services. Additionally, based on the 2000 Census data provided in Tables 3-3 and 3-4, no minority or low-income populations have been identified that would be adversely affected by the proposed project as determined above. Therefore, this project is in compliance with the provisions of EO 12898. There would be no permanent community impacts resulting from the implementation of any of the proposed alternatives.

### 3.4.4 Temporary Impacts

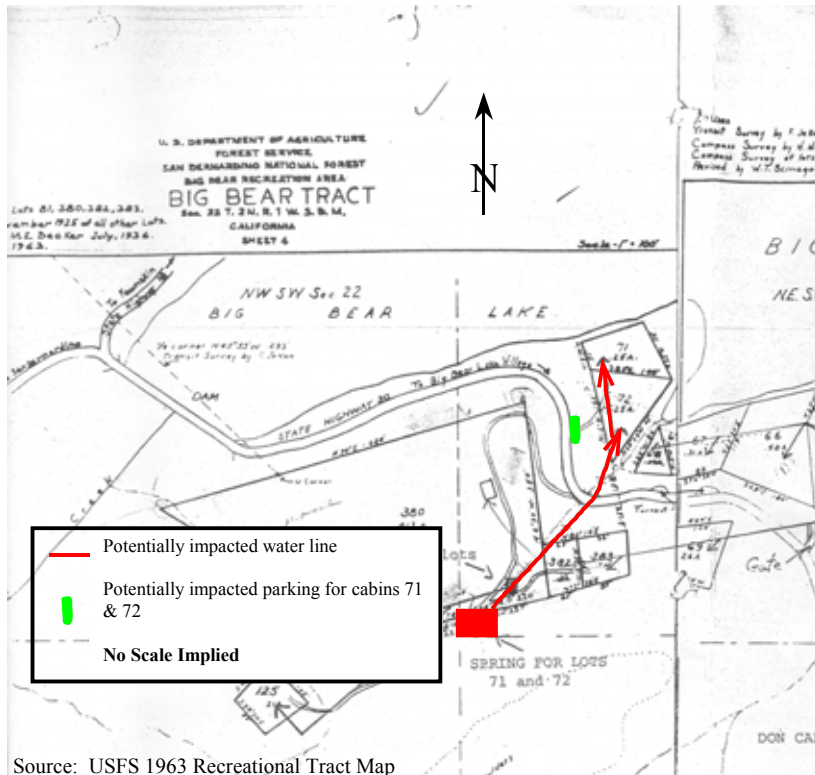
#### No Action/No Build

There would be no temporary community impacts associated with the No Action / No Build Alternative.

#### Alternative 4 and Alternative 5

Alternatives 4 and 5 have the potential to temporarily affect access/parking and water supply for two of the recreational residences during construction. A spring is located south of the Dam Keeper's property and water lines extend from the spring beneath the existing roadway to cabins 71 and 72, directly adjacent to the proposed build alternatives (see Figure 3-5 below).

**Figure 3-5: Potentially Impacted Waterlines and Parking**



### 3.4.5 Avoidance, Minimization and Compensation Measures

Disruptions to parking for the affected cabins will be minimized by providing additional parking along the shoulder during construction, limiting parking only during construction hours, and/or improving the parking area for the owners subsequent to construction. Potential impacts to the cabin owners and water supply would be minimized by notifying the owners of the cabins at least one month in advance of water supply curtailment and by providing bottled water and temporary restroom facilities. Any potential interruption in water supply would be limited and may not even be required. A meeting with any potentially affected parties would be scheduled at least one month prior to commencing construction activities with the potential to affect owners of recreational residences whose parking or water supply could be affected.

## 3.5 Wild and Scenic Rivers

### 3.5.1 Regulatory Setting

Projects affecting Wild and Scenic Rivers are subject to the National Wild and Scenic Rivers Act (16 USC 1271) and the California Wild and Scenic Rivers Act (Public Resources Code Sections 5093.50 et seq.).

There are three possible types of Wild and Scenic Designations:

- **Wild:** undeveloped with river access by trail only;
- **Scenic:** undeveloped with occasional river access by road; or
- **Recreational:** some development is allowed and is accessible by road

### 3.5.2 Affected Environment

The National Inventory of Wild and Scenic Rivers was reviewed and none of the water bodies potentially affected by the proposed project is designated as such by Congress. Additionally, the California Wild and Scenic Rivers system was reviewed and none of water bodies potentially affected by the proposed project is designated as a California Wild and Scenic River.

Currently, there are no officially designated Federal or State wild and/or scenic rivers within the project vicinity. However, within the 1989 San Bernardino National Forest Land and Resource Management Plan and FEIS, Bear Creek was designated for study as a wild river. To be eligible for study, a river must be both free-flowing and, along with its adjacent area, possess outstandingly remarkable values (ORV) in one or more of the following attributes: scenic, recreational, geological, fish and wildlife, historical, cultural, or other (including ecological). Within the Forest Service's Wild and Scenic River Eligibility Determination, Bear Creek was identified for its "outstanding native trout fishery." The California Fish and Game Commission also identified Bear Creek as a Wild Trout Stream and it is managed as a Wild Trout Stream by the California Department of Fish and Game. It is one of five streams with this designation in Southern California.

The resource management plan indicates surface waters eligible for study as a wild and scenic river will be studied on a case-by-case basis when a project or land use impacts could result in degradation of the characteristics that made it eligible for study as a wild and scenic river.

### **3.5.3 Permanent Impacts**

#### **No Action/No Build, Alternative 4**

There would be no construction or impacts downstream of the dam; therefore, there would be no potential for degradation of the Bear Creek's "outstanding native trout fishery."

#### **Alternative 5**

Bear Creek's status as a stream eligible for study and inclusion as a wild and scenic river would not be affected by the proposed alternative. Bear Creek's eligibility for study as a wild and scenic river is centered on its native trout population. Therefore, impacts that would be considered are those that would affect the fish population within the creek (e.g. water quality impacts). Water quality impacts would be minimal with strict adherence to: the National Pollution Discharge Elimination System permit, State Water Management Plan, Stormwater Pollution Prevention Plan (to be completed by the contractor and approved by the Department), as well as inclusion of all short-term and long-term Best Management Practices (BMP) (see Section 3.11.5), construction of detention basins and revegetation and restoration described within this document.

State Water Resources Control Board Order 95-4 assures minimum stream flow requirements at two locations: 1.) 92 meters (300 feet) below Bear Valley Dam 0.0085 cubic meters per second (0.3 cubic feet per second [cfs]) and 2.) further downstream where West Cub Creek merges with Bear Creek 0.034 cubic meters per second (1.2 cfs). Construction of this alternative would be required to adhere to stream flow requirements. It is not anticipated the existing flow or flow monitoring devices would be impacted during construction of Alternative 5. If it is later determined construction of Alternative 5 would impact the flow monitoring devices, temporary devices would be constructed downstream prior to removal of the existing flow monitoring devices to ensure continued monitoring of the stream flow requirements set forth in State Water Resources Control Board Order Number 95-4 (SWRCB, 1995). If the flow-monitoring device has to be relocated during construction, it will be replaced at its original location subsequent to construction.



### **3.5.4 Temporary Impacts**

#### **No Action/No Build, Alternative 4 and Alternative 5**

There would be no temporary impacts associated with the No Action / No Build alternative to Bear Creek, the flow into Bear Creek, or the trout population within Bear Creek that would jeopardize its potential listing and eligibility for study as a Wild and Scenic River.

### **3.5.5 Avoidance, Minimization and Compensation Measures**

The No Action/No Build alternative and Alternative 4 avoids Bear Creek. A 12-meter (40-foot) environmentally sensitive area (ESA) has been designated near the creek for Alternative 5. This area will be fenced 6 meters (20 feet) on both sides of the creek (measured from the center of the creek). No construction personnel, equipment or trestle bents would be allowed within the ESA. Additional avoidance and minimization measures include the following:

- Creation of three detention basins (see Figure 3-31 and 3-32) that would permanently improve the overall water quality of the creek;
- Strict adherence to all water quality permits and short and long-term BMPs (see Section 3.11.5);
- Revegetation of the entire project area in accordance with the restoration plan (see conceptual revegetation plan in Appendix E);
- The trestle and falsework deck will be designed to prevent debris from falling into Bear Creek/or Big Bear Lake; and
- Trash removal from the dam to 0.8 kilometer (0.5 mile) downstream from the dam would occur after completion of construction.

## **3.6 Utilities and Emergency Services**

In 1990, during the public scoping process, ten responses from various utility and emergency response companies/agencies regarding the potential impacts of the proposed project alternative on facilities and services were received. On June 10, 2003, all of the previous companies/agencies including, four additional requests for information regarding the proposed project were resent/sent to update the project information. Inquiries were mailed the following utility companies: Big Bear Lake Public Works Dept., Big Bear Area Regional Waste Water Agency, Solid Waste Management, Southwest Gas, Bear Valley Electric, Big Bear Community Services Dept., Big Bear Lake Dept. of Water and Power, Charter, and Verizon.

Information requests mailed to emergency services included: San Bernardino County Sheriff's Department, California Highway Patrol, Big Bear Lake Fire Dept., San Bernardino County Fire Dept., Fawnskin Fire Station 49, and the California Department of Forestry, and Fire Protection.

### **3.6.1 Affected Environment**

#### **3.6.1.1 Utilities**

##### **Water Service**

The city of Big Bear Lake Department of Water and Power provides domestic water supply to the study area. Currently, there are no domestic water supply facilities in the vicinity of the proposed project nor water infrastructure improvement plans for the project study area.

United States Forest Service recreational residences in the project area receive their water from common spring sources, including Don Carlos Spring (Lots 67, 68, 69, 382, and 383) and two unnamed springs (Lots 71, 72, 81, and 125). Water is drawn from the springs and conveyed to the cabins via small water lines. Don Carlos Spring is not located within the project area and the unnamed springs are located generally between Lots 81 and 382. The water lines for lots 71 and 72 are within the construction limits and will require protection in place or relocation. Long-term disconnection of this water supply would be considered a substantial impact if a substitute water source could not be provided to these lots (See Section 3.4.4: Figure 3-5).

Facilities maintained by the BBMWD in the project area include a destratification facility, which allows for aeration of the lake water to provide a more hospitable environment for fish, and a stream flow monitoring system (Parshall flume), located approximately 110 meters (350 feet) below the dam in the bottom of the stream channel. The proposed alignments for both Alternative 4 and 5 avoid impacts to these facilities. Additionally, proposed build Alternative 4 or 5 would allow BBMWD to proceed with planned phases of the dam rehabilitation project.

##### **Wastewater Service**

The city of Big Bear Lake Public Works Department (sanitation department) owns, operates, and maintains the city sewage system. City sewage is piped to the Big Bear

Area Regional Wastewater Authority (BBARWA) treatment facility. The city is not contractually limited on capacity, but pays for actual use calculated in equivalent dwelling units (EDU). The city operates and maintains BBARWA interceptors and seven pumping stations.

There are no sewer mains currently within the proposed project study area. The existing residential units in the study area include cabins that have special use permits from the USFS for sewer services that include holding tank or septic tank systems. A private contractor periodically pumps these systems out. Neither Alternatives 4 nor 5 would affect the holding tanks and neither would involve wastewater generating land uses. Therefore, no additional wastewater burden would result from project implementation.

### **Electrical Service**

Electrical service is provided in the project area by the Bear Valley Electric Service (BVES) of the Southern California Water Company (SCWC). SCWC does not generate electricity, but purchases all of its supply from Southern California Edison Company. There are 2,400-volt transmission lines on each side of the existing bridge. The north side originates in Fawnskin and terminates on the northeast edge of the existing bridge. The south line originates in the city of Big Bear Lake and terminates on the southeast side of the existing bridge. The south line provides service to the residential residences in the project area (Abraham, 1990). BVES converted the power line on the north side of the lake from single phase to three-phase. This conversion consisted of adding two conductors to the existing line and adding two additional pole transformers. The conversion was completed in fall 2003 (Abraham, 2003). With the exception of the proposed signal, no additional electrical burden would be associated with the proposed project.

### **Natural Gas Service**

Southwest Gas Corporation (SGC) provides natural gas service to the Bear Valley. There are currently no natural gas facilities in the project study area. The closest facility on the south shore is located along SR-18 at Cove Drive and another on the north shore along SR-38, 400 meters (1,300 feet) south of Cherokee. Currently, SGC has no plans to extend natural gas facilities to the project area. Construction activities for Alternative 4 or 5 would not affect natural gas services.

## **Disposal of Solid Waste**

The San Bernardino County Solid Waste Management Department (SBCSWMD) manages solid waste disposal in the Big Bear Valley. The agency operates two waste transfer stations: the Big Bear Transfer Station and the Heaps Peak Waste Transfer Station. The two regional landfills, the Big Bear landfill (serving Big Bear Valley), and Heaps Peak landfill (serving Arrowhead-Crestline) were closed in the mid 1990's. Construction refuse/debris from the proposed project would be hauled to an alternative landfill site. Potential landfills nearest the proposed project include the Apple Valley Landfill, Landers Landfill, and San Timoteo Landfill (Thomas 1990).

Additionally, the USFS requires that "product" that comes from the a National Forest be utilized for National Forest purposes; therefore, excavated rock material may be stockpiled for future USFS use or disposed of by the contractor at a location approved by the USFS.

## **Telephone**

Verizon is the telephone company within the project area. Telephone cables are strung on existing power poles up to the dam on both the north and south sides of the lake and then go through a conduit strapped to the west side of the existing bridge. Both Alternatives 4 and 5 would require relocation of some of these poles.

## **Television**

Charter Communications provides cable television service within the project area on the south side of the lake only. Cable television lines are hung on the existing power poles. Both Alternatives 4 and 5 would require relocation of some of these poles.

### **3.6.1.2 Emergency Services**

#### **California Highway Patrol (CHP)**

The CHP ensures safety and provides public service to those who utilize the State highway system. The CHP also assists local government during emergencies when requested. The Arrowhead CHP Office located in Running Springs, off of Highway 18, has jurisdiction within the project area. Response times to the project area range from 20 minutes during the summer to over an hour during the winter. The CHP has mutual assistance agreements with all local and state emergency, fire and ambulance services. Both Alternatives 4 and 5 would be coordinated and constructed in a manner that would minimize impacts to the CHP operations.

### **San Bernardino County Sheriff's Department (SCSD)**

The Big Bear Sheriff's Station is functionally organized into two distinct groups to serve the citizens of the Big Bear Valley. The station is host to the city of Big Bear Lake's contract law enforcement personnel, as well as staff serving the unincorporated area. The SCSD has mutual assistance agreements with CHP and fire agencies. Both Alternatives 4 and 5 would be coordinated and constructed in a manner that would minimize impacts to the SCSD operations.

### **Big Bear Lake Fire Department (BBLFD)**

The BBLFD is responsible for fire protection within the fire protection district. The Fire Protection District serves and protects the community through public education, fire prevention, fire suppression, emergency rescue, disaster preparedness, and other services to minimize the loss of life and property, damage to the environment, and adverse economic impacts due to natural or man-made emergencies or events. The District's boundaries currently incorporate approximately 23 square kilometers (9 square miles). The BBLFD has mutual assistance agreements with the USFS, California Department of Forestry and Fire Protection, Fawnskin Fire Department, and the Big Bear City Fire Department. Both Alternatives 4 and 5 would be coordinated and constructed in a manner that would minimize impacts to the BBLFD operations.

### **California Department of Forestry and Fire Protection (CDF)**

The CDF specializes in fighting forest fires as well as responds to an average of more than 286,000 non-fire emergencies each year within California. CDF is regularly dispatched to auto accidents and sometimes responds to drowning incidents, medical aids of all types, hazardous material spills, swift water rescues, search and rescue missions and civil disturbances. CDF has mutual aid agreements with all agencies and departments upon request. Both Alternatives 4 and 5 would be coordinated and constructed in a manner that would minimize impacts to the CDF operations.

## **3.6.2 Permanent Impacts**

### **No Action/No Build**

With this alternative there would be no utility relocation or impacts to existing utilities or services. However, due to the narrow bridge width and approach roadways, as well as intersection and approach roadway congestion, response times

may be increased because of inadequate access around bridge traffic during peak commute hours and seasonal traffic.

#### **Alternative 4**

Permanent impacts are limited to the removal/relocation of power poles adjacent to the proposed project. Preliminary analysis indicates Alternative 4 would require the permanent relocation of approximately four poles and all utilities associated with the poles as described above. Permanent beneficial impacts to emergency services include improved intersection operation, increased bridge size to allow emergency vehicle access during traffic congestion, and a potential decrease in number and severity of accidents resulting from the proposed geometric improvements.

#### **Alternative 5**

Permanent impacts are limited to the removal/relocation of power poles adjacent to the proposed project. Preliminary analysis indicates Alternative 5 would require the permanent relocation of approximately ten poles and all utilities associated with the poles as described above. Permanent beneficial impacts to emergency services include improved intersection operation, increased bridge size to allow emergency vehicle access during traffic congestion, and a potential decrease in number and severity of accidents resulting from the proposed geometric improvements.

### **3.6.3 Temporary Impacts**

All temporary impacts are related to the construction of the proposed alternatives. Water lines that serve the USFS recreational residences adjacent to SR-18 may require relocation (see Figure 3-5). Temporary interruption to water, cable, electricity, and telephone service may occur. Any interruption in service would be minimized to the maximum extent practicable. All emergency service providers commented on potential delays in response times during construction. Any potential delay would be temporary and minimized to the maximum extent practicable.

### **3.6.4 Avoidance, Minimization and Compensation Measures**

Subsequent to selection of a preferred alternative and prior to construction, a meeting between all affected utility companies and all emergency service providers would be convened to finalize the utility relocation, traffic-handling and emergency response plan. Utilities would be relocated to new poles or ducts on the new bridge. A minimum of one lane will remain open at all times and additional arrangements will

be made for emergency response within the TMP. With continued interagency coordination and the Department's experience in constructing projects on the narrow mountain roads, no impacts to response times are anticipated. Additional measures include:

- Prior to the start of construction activities, the Department will provide the USFS and emergency service agencies with construction traffic travel plans for the delivery of cut and fill, construction material and equipment throughout the project area.
- During construction activities, the blast charges shall be controlled by the contractor to limit the blasting vibration where structures and other cultural resources are within 34 meters (110 feet) from the blast site. Blasting in such areas shall be coordinated with and monitored by the Forest Service. If it is determined blasting cannot be conducted in a manner to prevent damage to structures and/or cultural resources, alternative methods of material removal shall be utilized. Advance notice of blasting activities shall be provided to local law enforcement and fire protection agencies, as well as residents/property owners within 610 meters (2,000 feet) of the project area. All explosives would be stored in accordance with applicable Federal and State laws.
- During construction activities, approval to use existing offsite areas for material storage/use, parking, construction staging, and access routes as identified in this document and as approved by the USFS and/or other parties (subsequent to the selection of a preferred alternative) will be required in the contract specifications.
- The Department will coordinate with the all potentially affected utility companies during the final design of the selected alternative to ensure adequate relocation or protection of their facilities.
- Prior to the closure of any travel lanes, the Department will notify affected jurisdictions, the public and emergency response providers of the timing, location and duration of lane closures, alternate routes and emergency response procedures. A traffic management plan will be developed subsequent to the selection of a preferred alternative. Details of the traffic management plan will be included in the FEIS/R and ROD.
- Prior to construction activities, the contractor will contact the USFS to identify locations for disposal/storage of wood and leaf products.
- Prior to project approval, the Department shall review project designs with BBMWD and the Division of Safety of Dams to ensure protection of their facilities.



- During construction activities related to modification on the existing SR-18, the contractor shall provide flaggers or other traffic control methods to ensure safe, and efficient traffic flow.
- During construction, the contractor shall protect recreational residence water supply lines in place or relocate them. Water supplies shall not be interrupted for more than 24 hours, and cabin owners shall be provided with a 10-day notice prior to an interruption of water supply.

### **3.7 Traffic & Transportation/Pedestrian and Bicycles Facilities**

#### **3.7.1 Regulatory Setting**

The Federal Highway Administration directs full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of Federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all Federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

The Department and FHWA are committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

#### **3.7.2 Affected Environment**

State Route 18 serves interregional, intraregional and local traffic. High demand occurs on weekends and holidays due to recreational trips to the San Bernardino mountains and desert areas. Average Daily Traffic (ADT) on SR-18 within San Bernardino County ranges from 4,800 to 40,600. The project area is composed of segments 7 and 8, as designated in the Route Concept Report (RCR) for SR-18. Segment 7 is listed as both a two-lane and four-lane conventional highway. Segment 8 is listed as a two-lane conventional highway. Segments 7 and 8 are also classified as extensions of a rural minor arterial into an urban area and non-high emphasis interregional route, respectively. The concept facility, as identified in the RCR through the year 2020, is the same as the existing (RCR, 2002).

The route concept for SR-18 within the project area is “maintain only.” This allows for safety and operational improvements that do not increase capacity of the highway. The proposed project is consistent with the route concept report because the proposed project would not increase the capacity of the highway although it would improve the operational efficiency of the intersection by signaling the intersection of SR-38 and SR-18 and by adding a storage lane in the westbound direction for both Alternatives 4 and 5. The ultimate transportation corridor for segments 2-11, which incorporates “build out” of development identified in county and local general plans, is the existing facility. The acceptable Level of Service (LOS) for rural two-lane highways in mountainous terrain is C/D (RCR, 2002).

There are approximately 380 kilometers (240 miles) of State highways within the SBNF. State highways within the SBNF are classified as forest arterials in the San Bernardino National Forest Transportation System Plan. This plan indicates that the desirable capacity of two-lane highways is LOS C and is equivalent to 400 to 800 vehicles per hour. The theoretical capacity of two-lane highways is 2,000 vehicles per hour (level of service E); however, in the mountains this number is reduced to 1,600 vehicles per hour to account for factors such as speed, terrain, etc. (USFS, 1989).

The SBNF Land and Resource Management Plan identifies several problem areas were at, or were predicted to be at LOS E or worse by the year 2000. The Forest Service identified LOS E as the worst condition tolerable and accepted by users during peak periods. The corridor from the SR-18 and SR-330 to the city of Big Bear Lake was identified as a problem area that would exceed LOS E by the year 2000 (USFS, 1989). Currently within the project area, LOS E is exceeded during peak travel times on weekends and holidays throughout the year.

The management plan indicates it is USFS policy to evaluate each project on a case-by-case basis. The USFS is a cooperating agency under NEPA as well as a permitting agency for this project and is working closely with the Department to develop projects that will not only improve access to the forest but would also minimize impacts to resources. This project is consistent with the USFS Land Resource and Management Plan.

### 3.7.2.1 Traffic & Transportation

The approach roadways of SR-18 and SR-38 intersection are irregular and may contribute to driver confusion that may contribute to the number of accidents at the intersection. The intersection has stop, yield, and uninterrupted through movements. Both westbound SR-38 lanes are controlled by stop signs. Traffic continuing eastbound onto SR-38 from eastbound SR-18 at the intersection is required to yield. Traffic on westbound SR-18 has no traffic control device. Data from the Department's Traffic Accident Surveillance and Analysis System (TASAS) indicate that from June 6, 1999 to February 31, 2002, 11 of 29 accidents within the project limits occurred at the intersection. A summary of the intersection accident data is provided in Table 3-6.

**Table 3-6: Intersection Accident Summary**

Location	Actual			Average		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
SR-18 KP 77.3 (PM 44.3)	0.00	.54	1.18	0.004	0.10	0.22

Source: Department TASAS Data, 2002

Traffic volumes within the project area are subject to variations created by seasonal recreational demand. The highest traffic volumes are generated on weekends and holidays during the winter months during the ski season. Additionally, high traffic volumes are generated during weekends and holidays during summer months due to various recreational opportunities associated with Big Bear Lake and the SBNF. The USFS reported approximately 55% of all traffic entering the Big Bear area uses SR-18 and crosses the Big Bear Lake dam bridge (USFS 1989).

The proposed project is not considered a capacity increasing project; however, the efficiency of the intersection would be increased and signalized, while the capacity of the roadway would remain unchanged. As identified in the RCR for SR-18, the proposed operational and safety improvements are consistent with recommendations in the RCR. State Route 18 from SR-189 to SR-247, which encompasses the proposed project, is already at the concept facility for the year 2020 (Caltrans, 2002a).

The Department completed an intersection analysis using a traffic modeling computer program. The analysis identified the need for an additional westbound storage lane increasing the bridge width from the existing two lanes to three lanes to obtain the

desired level of service throughout the design life of the project. Table 3-7 indicates the anticipated traffic volumes as well as the LOS for both 2 and 3 lane signalized and unsignalized alternatives for the construction year (2008) and the Design year (2028) for the No Action/No Build Alternative and the design year for Alternatives 4 and 5.

The LOS is determined based on traffic volumes. Level of Service is a qualitative measure describing operational conditions within a traffic stream, generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. Level of Service condition is designated as “A” (indicating free flow conditions) through “F” (indicating worst-case congested conditions).

The LOS of the intersection outside of the weekends and holidays is LOS B. The LOS breaks down substantially to LOS F during peak winter and summer recreational seasons (Caltrans,2003a). Table 3-8 provides the definition of the various LOS determinations.

**Table 3-7: Projected Traffic Demand and Associated Intersection LOS<sup>1</sup>**







Alternative	Year	Number of lanes	Average Daily Traffic	Design Hour Volume	LOS Unsignalized	LOS Signalized
<b>Existing</b>	2002	2	6200	1252	C	N/A
<b>No Action/ No Build</b>	2008	2	6740	1354	D	N/A
	2028	2	8700	1735	F	N/A
<b>Alternative 4</b>	2008	2	6740	1354	D	D
	2008	3	6740	1354	D	B
	2028	2	8700	1735	F	E
	2028	3	8700	1735	F	C
<b>Alternative 5</b>	2008	2	6740	1354	D	C
	2008	3	6740	1354	C	B
	2028	2	8700	1735	F	E
	2028	3	8700	1735	D	C

1. Source: Caltrans, 2004

Based on the data provided in Table 3-7, the LOS of the intersection for all unsignalized two-lane alternatives in the design year (2028), would be F. The intersection LOS for unsignalized three-lane alternatives would be F (Alternative 4) and D (Alternative 5). The intersection LOS of unsignalized alternatives is substantially worse when compared to intersection LOS for signalized three-lane alternatives (C for both Alternatives 4 and 5). Additionally, four-lane alternatives

were also analyzed; however, based on the data above, the three-lane alternatives are adequate based on the projected intersection LOS of C in the design year for both Alternative 4 and 5.

**Table 3-8: LOS Description<sup>1</sup>**

<b>LEVELS OF SERVICE</b> for Two-Way Stop Intersections			
Level of Service	Flow Conditions	Delay per Vehicle (seconds)	Technical Descriptions
<b>A</b>		≤10	Very short delays
<b>B</b>		11-15	Short delays
<b>C</b>		16-25	Minimal delays
<b>D</b>		26-35	Minimal delays
<b>E</b>		36-50	Significant delays
<b>F</b>		>50	Considerable delays

Source: 2000 HCM, Exhibit 17-2, Level of Service Criteria for TWSC Intersections

<sup>1</sup> Existing intersection of SR-18 and SR-38 most closely resembles this type of intersection

Based on the data in Tables 3-7 and 3-8, the Department has determined that three lanes are desirable to improve efficiency at SR 18/38 intersection to minimize traffic back-up during peak travel times and to meet operational requirements for the 2028 design year. Three lanes would improve intersection operational efficiency, enhance intersection safety, and provide a more enjoyable driving experience for visitors (50,000+ on weekends [USFS, 1989]) to the San Bernardino National Forest and Big Bear Lake area.

### **3.7.2.2 Pedestrian and Bicycle Facilities**

No bicycle lanes currently exist on SR-18 or SR-38 and none have been identified within State, county or city plans; however, the USFS has indicated a desire for a future walking/biking path around Big Bear Lake. The majority of this path would be located along the lake, except where lakeshore topography makes it inaccessible (e.g. within the project area slope of the shoreline is too steep for ADA compliant path) and the path would revert to the existing roadway. Although bike paths for non-motorized traffic may enhance safety and convenience for both non-motorized traffic and motorists, it was determined inappropriate to designate such a pathway for the proposed project based on limited use, lack of continuity with other pathways, and the short length of this project.

An edge stripe and 3.0-meter (10-foot) shoulders are proposed to enhance safety and convenience for nonmotorized traffic on the bridge. Of eight accidents that occurred within the bridge limits, one involved a collision with a bicyclist.

The existing bridge has a sidewalk on the west side that does not meet the Department's design standards and is not ADA compliant. The proposed bridge for both build alternatives would include a standard 1.52-meter (5-foot) sidewalk along one side of the bridge designed to meet ADA standards.

Moreover, the proposed improvements to curve radii, intersection signalization and realignment of the approach roadways would provide greater sight distance, enhancing safety for nonmotorized and pedestrian traffic on the bridge. Of seven accidents occurring at the intersection, one involved a collision with a pedestrian.

### **3.7.3 Permanent Impacts**

#### **No Action/No Build**

Traffic conditions would continue to degrade and traffic could back up during peak seasonal use into the city of Big Bear Lake. The bridge would remain out of compliance with the ADA and cyclists would continue to have to cross the bridge within the narrow traveled-way.

## **Alternative 4 & 5**

Both Alternatives 4 and 5 would result in permanent beneficial impacts. The beneficial impacts are:

- Improved intersection circulation throughout the design life of the project;
- Decreased emergency vehicle response times due to increased maneuverability associated with the wider bridge and shoulders;
- Dependable long-term access for recreation and commute traffic and as an emergency evacuation route;
- The bridge sidewalk would be ADA compliant; and
- The 3-meter (10-foot) shoulders would allow cyclists to cross the bridge outside of the traveled-way.

Additionally, signalizing the intersection and improving the approach roadway geometrics and sight distance would reduce driver confusion and enhance intersection safety for both motorized and nonmotorized users.

### **3.7.4 Temporary Impacts**

#### **No Action/No Build**

The existing bridge would have to be closed at various times to complete the required yearly maintenance. These closures are expected to increase with time as degradation of the bridge continues to accelerate as it is subjected to the annual freeze/thaw cycles characteristic to the mountain environment. Degradation of the bridge is also anticipated to accelerate due to projected increased traffic, as well as the projected increased use of the recreational opportunities associated with the projected population growth of San Bernardino, Riverside and Los Angeles Counties (SCAG, 2003).

#### **Alternatives 4 and 5**

Temporary impacts from these alternatives would occur during their construction and would be similar for both alternatives. The Department anticipates both of the proposed alternatives' impacts during construction would result in the potential for traffic delays, detours and increased construction truck traffic. Subsequent to selection of a preferred alternative, a TMP will be developed to address potential impacts resulting from construction of this alternative on local and regional traffic patterns.



### **3.7.5 Avoidance, Minimization and Compensation Measures**

The following measures are appropriate for both alternative 4 & 5.

- Temporary closures or detours and/or one-way traffic control;
- All work that requires traffic delays and or detours would be completed during non-commute hours; and
- All work will be completed during weekdays excluding holidays.

Subsequent to selection of a preferred alternative a TMP will be developed and the impacts will be discussed in the FEIS/R. The plan may include the following elements as appropriate: public awareness campaign, highway advisory radio, portable changeable message signs, temporary sensor/signals, bus or shuttle service and/or Construction Zone Enhanced Enforcement Program.

The TMP may also include as appropriate: agreements with local agencies to provide enhanced infrastructure on arterial roads or intersections to deal with detoured traffic and contracts with local agencies for traffic personnel for special event traffic through or near the construction zone.

## **3.8 Visual/Aesthetics**

### **3.8.1 Regulatory Setting**

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government shall use all practicable means to assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 USC. 4331(b)(2)]. To further emphasize this point, the FHWA in its implementation of NEPA [23 USC 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic and historic environmental qualities.” [CA Public Resources Code Section 21001(b)].

### 3.8.2 Affected Environment

The proposed project area is located entirely within the San Bernardino National Forest. The USFS management plan addresses the visual quality of all areas within the San Bernardino National Forest. Areas within the National Forest are grouped and assigned visual quality objectives to guide the USFS when evaluating the compatibility of projects within a visual setting. Visual quality objectives are, “a desired level of excellence based on physical and sociological characteristics of an area.” Visual quality objective “refers to a degree of acceptable alteration of the landscape.” Visual quality objectives provide guidance to the USFS when incorporating landscape changes within the forest and their effect on the overall visual quality of the forest landscape. A description of each visual quality objective is provided below (USFS, 1988).

- Preservation – allows ecological changes only;
- **Retention – provides for management activities that are not visually evident (project area);**
- Partial Retention – management activities remain visually subordinate to the characteristic;
- Modification – management activities may visually dominate the original characteristic landscape. They must borrow from naturally established form, line, color or texture so completely and at such a scale that their visual characteristics are those of natural occurrences within the surrounding area or character; and
- Maximum Modification – management activities dominate the characteristic landscape. However, when viewed as background, the visual characteristics must be those of natural occurrences within the surrounding area or character type. When viewed as foreground or middle ground, they may not appear to completely borrow from naturally established form, line, color or texture.

The entire project area is within an area with a visual quality objective of visual retention. Areas that are classified for visual retention provide for management activities that are not visually evident (USFS, 1988).

The landscape within the project area has been virtually unchanged for many years. Any alterations of the terrain, vegetation, and or views will be highly noticeable. Only the No Action/No Build alternative will meet the Forest Service visual quality objective for the project area.

State Route 18 through the project area is part of the Rim of the World Scenic Highway, as well as a National Forest Scenic Byway. Both SR-18 and SR-38 are eligible for listing as State scenic highways; however, none of the roads within the Big Bear Valley are designated National or State Scenic Highways.

The proposed project build alternatives encompass approximately 5.3 hectares (13 acres) at the west end of Big Bear Lake. The lake extends in an east-west direction, with the Big Bear Dam and Bridge at the west end. The entire project area is within USFS land holdings or across Big Bear Lake. Land uses adjacent to the project area include: scattered USFS recreational residences and open space to the north, scattered USFS recreational residences and Big Bear Lake to the east, scattered USFS recreational residences and open space to the south, and Bear Creek/Bear Creek Canyon and undeveloped National Forest lands to the west.

Big Bear Lake serves as the focal point within the landscape. Rugged mountain slopes and pine forest surround the lake. Rocky slopes and rock outcrops frame the lake and are visible through the trees on the mountainsides. Due to the many mature trees and large rocks in the area, cabins and other structures are hardly visible from a distance. The only other man-made components of the project area's visual setting are SR-18 and SR-38 and associated power lines, road signs, the dam, and the lake itself.

Both proposed build alternatives (Alternatives 4 and 5) have potentially adverse visual impacts that cannot be avoided; however, these impacts can be minimized through mitigation (Caltrans, 2003b). The Department has prepared a Visual Impact Assessment (VIA) to evaluate the effects of the proposed build alternatives on the area's visual quality. The VIA was completed in accordance with FHWA guidelines and evaluated key view visual qualities of the proposed build alternatives. Key views were identified through observation and are those areas most sensitive to the proposed bridge alternatives, as well as the most common public views. Viewer groups considered within the VIA are described below and are divided by those who use the highway and those who are highway neighbors (use activities adjacent to the highway). While there are multiple users and residents in the project area, views

from each user group and from every potential user's viewpoint are not evaluated in this VIA. Instead, views from the largest user groups and viewpoints where the greatest visual quality changes are expected were used to limit the number of viewpoints selected for simulation and analysis.

### **Highway Users**

**Motorists:** SR-18 and SR-38 serve as main routes for travelers from the San Bernardino to reach various mountain resort destinations which include: Crestline, Lake Arrowhead, Running Springs, and Big Bear Lake and its surrounding communities. These motorists generally use SR-18 and the Big Bear Lake Bridge to reach the city of Big Bear Lake, although some may take North Shore Drive (SR-38) through Fawnskin or SR-38 from Mentone. Because of the mountainous terrain, highway users generally travel at reduced speeds, thereby increasing viewing opportunities.

**Bicyclists and Hikers:** There are many recreational hiking trails within the Big Bear Valley. The San Bernardino Mountains and the highway shoulders also provide cyclists with opportunities for mountain biking.

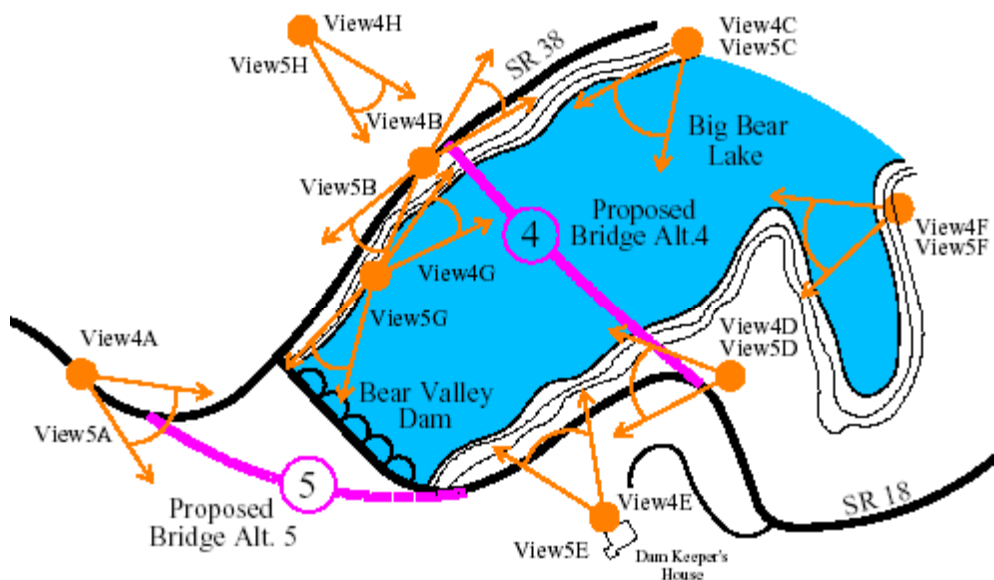
### **Highway Neighbors**

**Residents and businesses:** There are cabins and businesses sparsely scattered along the entire SR-18 and along the shoreline that provide housing and employment for local residents. The residents and employees in the area have unobstructed lake views and the surrounding hillsides. Since the concentration of development is within the city of Big Bear Lake, approximately 1.6 kilometers (one mile) east of the dam, views of the dam and bridge are not highly visible to these neighbors. Some cabins are located adjacent to the project area along the lakeshore and on the surrounding slopes, affording residents direct lake views and dam area. There are no businesses located within the project area.

**Visitors:** The Big Bear Valley is a tourist destination for those taking day trips and also for extended stays during the summer and winter peak seasons. The summer season attracts those who wish to boat, fish or enjoy other water sports. The winter season attracts skiers and snow visitors to nearby ski resorts and day-use areas. The Big Bear Discovery Center at North Shore is located at the northeastern edge of the lake off SR-38. This center serves as a visitor's stop and information center for area resources, facilities, and services.

Seven key views selected for the project are described below and are depicted in each of the alternative simulations (Caltrans, 2003b). Figure 3-6 shows the approximate location and directions of each of the viewpoints.

**Figure 3-6: Key Views**



- Viewpoint A:** This viewpoint represents the first major view of Big Bear Lake. This view, on the eastbound approach on SR-18, just west of the Big Bear Lake Bridge, will be the starting point for the proposed bridge across the canyon for Alternative 5. As the road clears ahead, a view of the lake waters is slightly visible to the east. A steep mountainside is evident north of the road and a deep canyon to the south side. The conifers, deciduous trees, and steep hillsides with rock outcroppings define the dominant view to the south, with rocky side slopes and some trees on the north side. The clearing in front of the road shows the lake surrounded by distant mountains. The winding roadway and guardrail and occasional turnouts are typical foreground views of SR-18 as the highway traverses the mountains. This viewpoint is important because it provides the initial visual entry to Big Bear Lake for highway travelers along SR-18. Presently, the visual quality of this view is reduced by existing directional signs and above ground utility lines.
- Viewpoint B:** This viewpoint is expected to be the new gateway to Big Bear Lake for Alternative 4. The viewpoint, located east of SR-18 and SR-38 junction

on the north side of the Big Bear Lake, and looks southeast and southwest. This view is located approximately 100 meters (328 feet) northeast of the existing Big Bear Lake Dam Bridge. Trees along the lakeside create intermittent viewing opportunities of the lake. The partial lake views through the trees provide an immediate contrast to the steep hillsides and associated conifers and rock outcroppings that frame the view. Middle ground views to the east include a hillside with conifers, rock outcroppings, and SR-38. Southwest views include the lake, Big Bear Lake Dam, and the adjacent mountainsides. Background views across Big Bear Lake include Inspiration Point and the San Bernardino Mountains.

The simulation for this view is of the viewshed looking northeast (across the lake) for Alternative 4 and southwest (looking at the canyon area) for Alternative 5.

- **Viewpoint C:** This viewpoint represents the westerly views of lakeshore users and boaters located east of the proposed bridge for Alternative 4. It is located along the lakeshore south of SR-38, approximately 427 meters (1,400 feet) northeast of Big Bear Lake Bridge, on the north side of the lake. Views face southwest and look across the lake toward the existing bridge. Steep hillsides with rock outcroppings and conifers define the edges of Big Bear Lake and frame the view toward the Big Bear Lake dam and Bear Creek Canyon in the background. Lake waters, nearby shore and rocks, and boaters on the lake, dominate foreground views. Partially obscured cabins are also visible through the trees at scattered sites across the lake.
- **Viewpoint D:** This viewpoint is representative of views from cabins located adjacent to the Big Bear Lake Dam Bridge. The view looks westbound on SR-18 at the roadway curve, approximately 198 meters (650 feet) east of Big Bear Lake Dam Bridge on the lake's south side. This view is near the westernmost edge of the Big Bear Lake Southwest Shore Historic District and from a cabin located nearest the proposed bridge alternatives. Views face the west and northwest from the cabin nearest the lake and the existing bridge. Foreground views include the lake, rock outcroppings, and SR-18. Pine-covered mountainsides are visible in the background. A partial view of the Big Bear Lake Dam Bridge is visible; however, the bridge is obstructed by nearby conifers. The northwest view includes a pine forest and rock outcroppings adjacent to Big Bear Lake. A hillside with rock outcroppings and scattered conifers; dominate the western view.

Guardrail and aboveground utility poles are also visible along SR-18 at this location.

- **Viewpoint E:** This viewpoint represents views of visitors as seen from the historic Dam Keeper's House on the south side of SR-18, southeast of the existing bridge. While the Dam Keeper's House is currently in disrepair and vacant, the Forest Service has indicated the desire to rehabilitate the structure and develop this property into a historical interpretive site. The property occupied by the Dam Keeper's House extends around the structure, but the viewpoint was selected at the north side of the structure. This view includes the lake waters through tree foliage and sloping foreground, with distant views of the mountainsides to the north. Stands of large trees dominate eastern and western views.
- **Viewpoint F:** This viewpoint represents the view of residents within the Big Bear Lake Southwest Shore Historic District. The view is from a cabin located within the historic district, just north of SR-18 as the roadway runs easterly from the bridge. Seventy-seven USFS recreational residences are located within the district. View D is from the westernmost cabin within the historic district where the proposed alternatives would potentially be visible from. This view looks northwest toward the existing bridge, although the bridge is not visible. Lake waters are visible from the northwest to the northeast from these cabins, and are framed by rock outcroppings and trees along the lakeshore. Foreground views include nearby trees and cabins within the historic district, with middle ground water and lakeshore views. Background views include the hillsides north of the lake.
- **Viewpoint G:** This viewpoint represents lakeshore users and fishermen views located between the existing bridge and proposed bridge Alternative 4. Views face toward the east, south and west and look across the lake. The lakeshore is highly visible from this perspective view with rock outcroppings and trees defining the edges of Big Bear Lake. The segment of SR-18 east of the existing bridge is slightly visible from across the lake. The lake dominates foreground views, background views consist of lakeshore and hillsides. Trees and rocks cover the lakeshore and hillsides, with scattered cabins in the distance. The simulation for Viewpoint G will face the viewshed directly east (looking across the lake) for Alternative 4 and to the southwest (looking at the existing bridge and hillside area) for Alternative 5.

- **Viewpoint H:** This viewpoint represents the view from cabins on the north side of SR-38 and elevated above the existing roadway. It is estimated six cabins on the high northern slope would see the proposed bridge below. The selected view is from the nearest cabin on this hillside area and faces south and down toward the lake. The view shows SR-38 below and SR-18 across the lake. Foreground views are dominated by nearby trees, with lake waters below visible through the trees. Background views include hillside areas surrounding the lake. The existing dam and canyon area to the west are not visible due to existing vegetation.

Evaluations of the views discussed above were based on three visual criteria: vividness, intactness and unity.

- Vividness – the extent to which the landscape is memorable to viewers. This quality is associated with the distinctiveness, diversity and contrast of the visual elements in the landscape. A vivid landscape makes an immediate and lasting impression on the viewer;
- Intactness – the integrity of visual order in the landscape and the extent to which the natural and built landscape is free from visual intrusions. This quality refers to the absence of eyesores and other obstructions to the visual pattern of the landscape; and
- Unity – the visual harmony of the different landscape elements and the extent to which intrusions are sensitive to the landscape. This quality refers to the overall coherence and harmony of the natural and manmade elements in the landscape unit.

These criteria were rated on a scale of 1 to 7 (with 7 being the highest) to determine the existing visual quality and overall change in the visual quality of the landscape as a result of the proposed alternatives. The numeric rating scale that describes the visual quality is as follows:

- 1 to 3 – very low to moderately low;
- 4 to 5 – moderate to moderately high; and
- 6 to 7 –high to very high.



Licensed landscape architects, experienced in visual impact assessments evaluated the existing visual environment (vividness, intactness and unity) of the proposed alignments for both alternatives 4 and 5 in relation to the viewpoint as shown in Figure 3-6. The ratings from this evaluation were then used as a baseline to determine the overall change in the visual quality of the key views associated with each build alternative. The results of this analysis are provided in Table 3-9. Some of the ratings could improve slightly to moderately depending on maximum regrowth of vegetation after 50 to 100 years. The simulations used in making the determinations in Table 3-9 are provided in Figures 3-7 through 3-22. Simulations show approximately 5-7 years of vegetation growth. The treatment and design mitigations shown in the simulations should not be considered final. The selection of the final design details for the proposed bridge will be made in coordination with the measures outlined in the Section 106 Memorandum of Agreement (MOA) for the project (see Section 3.9.1). This MOA will be completed after selection of a preferred alternative. Bridge design and treatments shown in the simulations are conceptual and should not be considered the final design components of the proposed project alternatives.

Figure 3-7: Alternative 4 – View A



View A - Existing Condition



View A - Proposed Simulation

# Big Bear Lake Bridge Replacement Project

Alternative 4

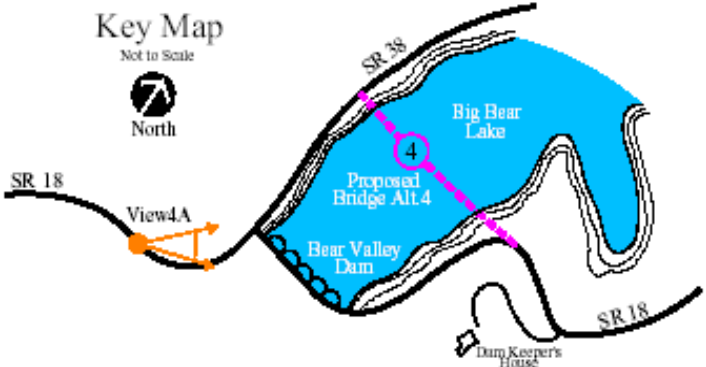
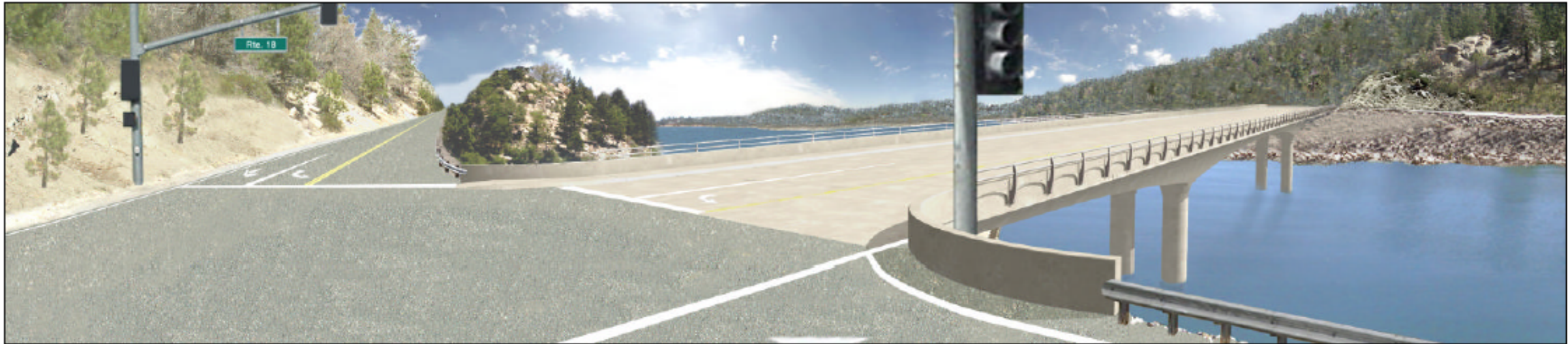




Figure 3-8: Alternative 4 – View B



View B - Existing Condition



View B - Proposed Simulation

**Big Bear Lake Bridge Replacement Project**  
Alternative 4

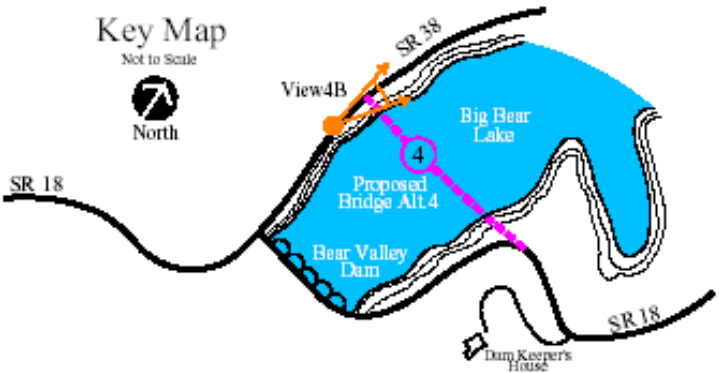




Figure 3-9: Alternative 4 – View C



View C - Existing Condition



View C - Proposed Simulation

## Big Bear Lake Bridge Replacement Project

### Alternative 4

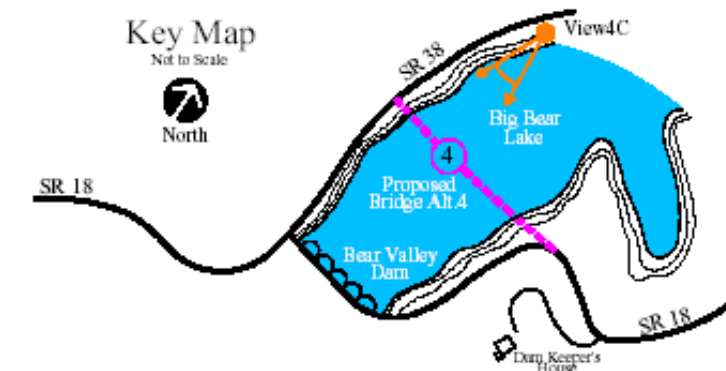




Figure 3-10: Alternative 4 – View D



View D - Existing Condition



View D - Proposed Simulation

# Big Bear Lake Bridge Replacement Project

Alternative 4





Figure 3-11: Alternative 4 – View E



View E - Existing Condition



View E - Proposed Simulation

## Big Bear Lake Bridge Replacement Project

### Alternative 4

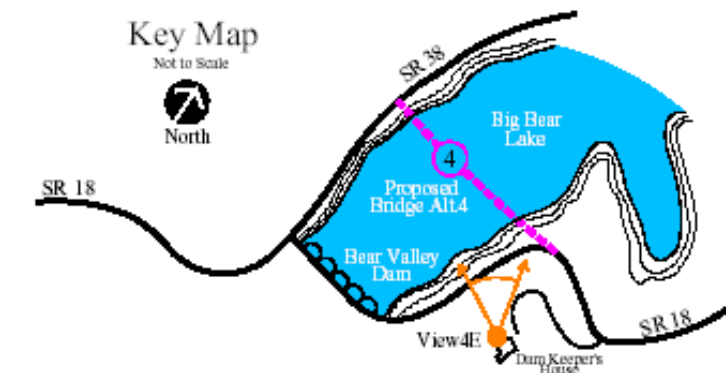




Figure 3-12: Alternative 4 – View F



View F - Existing Condition



View F - Proposed Simulation

**Big Bear Lake Bridge Replacement Project**  
Alternative 4

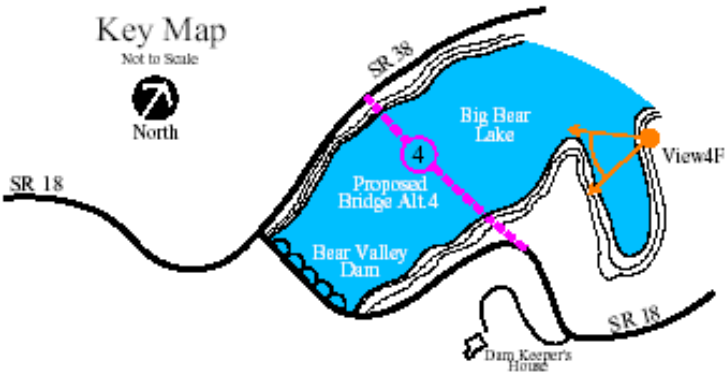




Figure 3-13: Alternative 4 – View G



View G - Existing Condition



View G - Proposed Simulation

## Big Bear Lake Bridge Replacement Project

Alternative 4

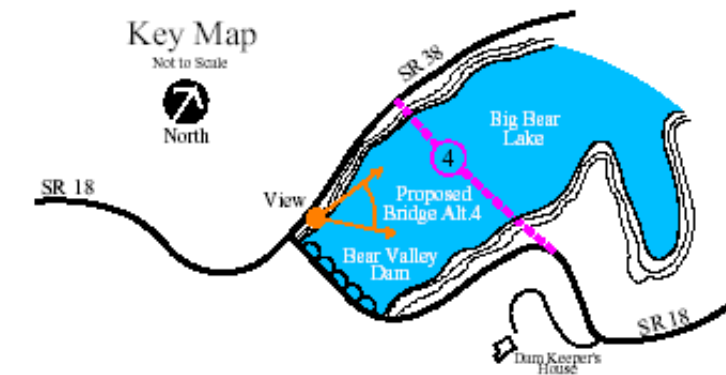




Figure 3-14: Alternative 4 – View H



View H - Existing Condition



View H - Proposed Simulation

**Big Bear Lake Bridge Replacement Project**  
Alternative 4

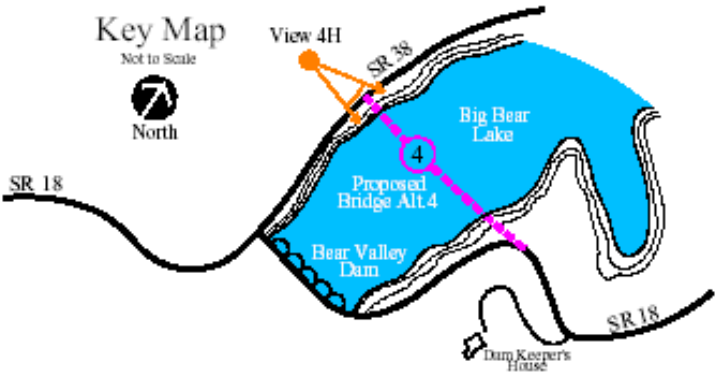




Figure 3-15: Alternative 5 – View A



View A - Existing Condition



View A - Proposed Simulation

## Big Bear Lake Bridge Replacement Project

### Alternative 5

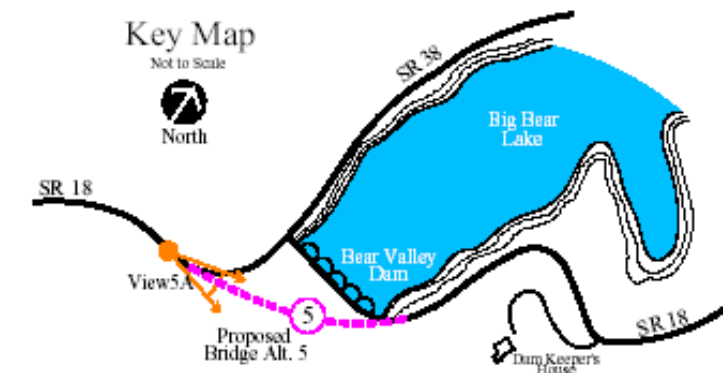




Figure 3-16: Alternative 5 – View B



View B - Existing Condition



View B - Proposed Simulation

# Big Bear Lake Bridge Replacement Project

Alternative 5

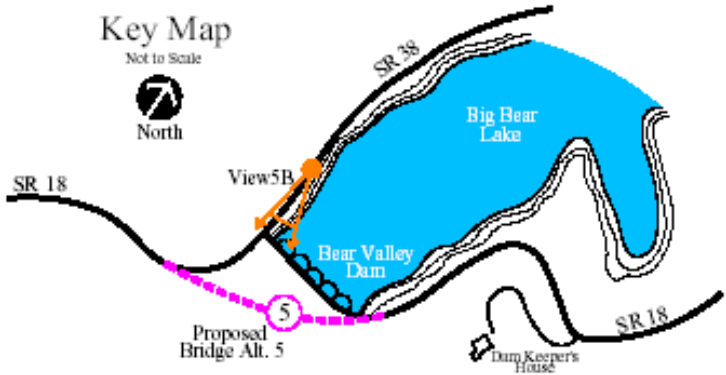




Figure 3-17: Alternative 5 – View C



View C - Existing Condition



View C - Proposed Simulation

## Big Bear Lake Bridge Replacement Project

### Alternative 5

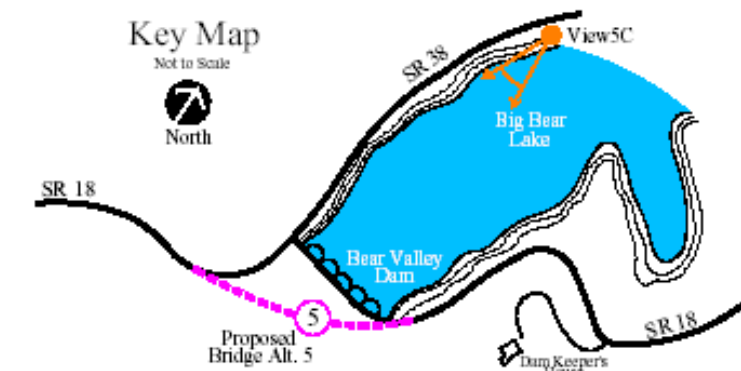




Figure 3-18: Alternative 5 – View D



View D - Existing Condition



View D - Proposed Simulation

**Big Bear Lake Bridge Replacement Project**  
Alternative 5

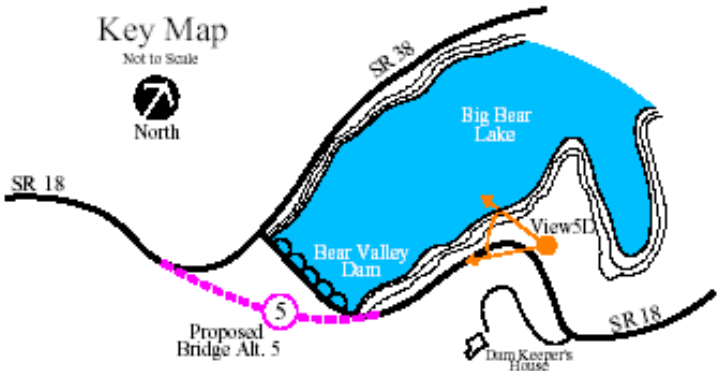




Figure 3-19: Alternative 5 – View E



View E - Existing Condition



View E - Proposed Simulation

## Big Bear Lake Bridge Replacement Project

### Alternative 5

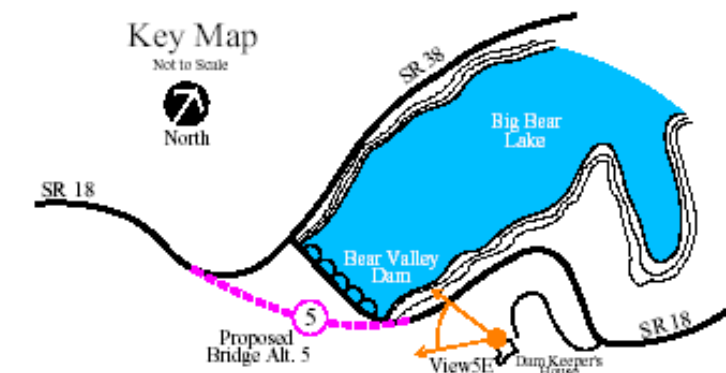




Figure 3-20: Alternative 5 – View F



View F - Existing Condition



View F - Proposed Simulation

**Big Bear Lake Bridge Replacement Project**  
Alternative 5

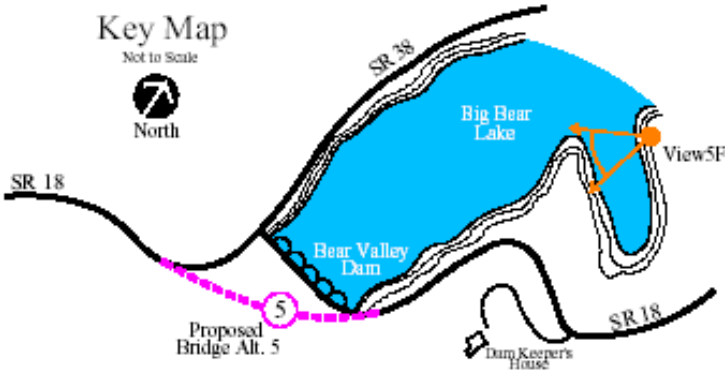




Figure 3-21: Alternative 5 – View G



View G - Existing Condition



View G - Proposed Simulation

## Big Bear Lake Bridge Replacement Project

### Alternative 5

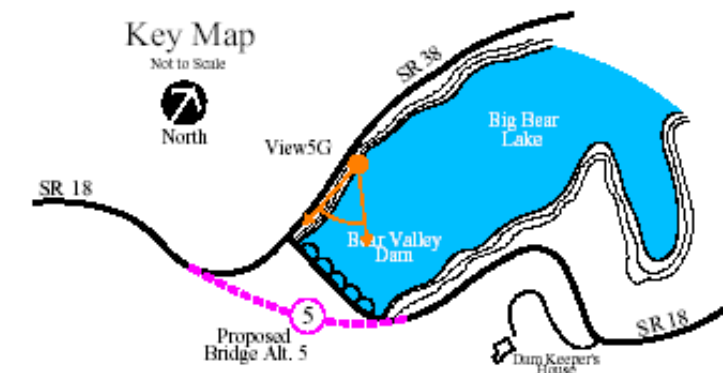




Figure 3-22: Alternative 5 – View H

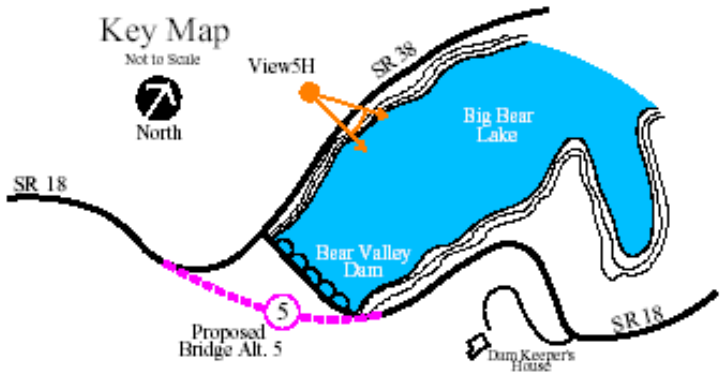


View H - Existing Condition



View H - Proposed Simulation

**Big Bear Lake Bridge Replacement Project**  
Alternative 5





### **3.8.3 Permanent Impacts**

#### **No Action/No Build**

There are no visual impacts associated with this alternative. This is the only alternative that would meet the USFS visual quality objective of retention.

#### **Alternative 4 and 5**

There would be a permanent reduction in the overall visual quality of the project area as a result of either of the proposed build alternatives. The results of the visual impact analysis are provided in Table 3-9 below. There would be a permanent overall reduction in the visual quality of every viewpoint with the exception of Viewpoint F for Alternative 5; however, overall, Alternative 5 is less visually intrusive for the major viewer groups.

**Table 3-9: VIA Results**

Location	Vividness	Intactness	Unity	Visual Quality <sup>1</sup> (V+I+U)/3	Change in Visual Quality <sup>2</sup>
<b>Existing Conditions (Baseline VIA Data)</b>					
<b>Viewpoint A</b>	4.6	4.0	4.2	4.3	N/A
<b>Viewpoint B</b>					N/A
Looking East	5.5	5.5	5.5	5.5	
Looking Southwest	5.3	5.3	5.3	5.3	
<b>Viewpoint C</b>	5.4	6.1	6.0	5.8	N/A
<b>Viewpoint D</b>	4.8	5.0	4.9	4.9	N/A
<b>Viewpoint E</b>	5.4	5.9	5.8	5.7	N/A
<b>Viewpoint F</b>	5.8	6.0	6.1	6.0	N/A
<b>Viewpoint G</b>					N/A
Looking East	5.1	5.7	5.2	5.3	
Looking West	5.1	5.4	5.4	5.3	
<b>Viewpoint H</b>	5.4	5.6	5.8	5.6	N/A
<b>Alternative 4: New Bridge Across Big Bear Lake</b>					
<b>Viewpoint A</b>	3.9	3.7	3.7	3.8	-0.5
<b>Viewpoint B</b>	3.8	3.0	3.3	3.4	-2.1
<b>Viewpoint C</b>	3.9	3.6	3.3	3.6	-2.2
<b>Viewpoint D</b>	3.5	3.0	3.0	3.2	-1.7
<b>Viewpoint E</b>	5.1	4.9	4.8	4.9	-0.8
<b>Viewpoint F</b>	5.5	5.4	5.4	5.4	-0.6
<b>Viewpoint G</b>	3.4	2.8	2.7	3.0	-2.3
<b>Viewpoint H</b>	4.3	3.4	3.2	3.6	-2.0
<b>Alternative 5: New Bridge Across Bear Creek</b>					
<b>Viewpoint A</b>	4.3	2.9	3.4	3.6	-0.7
<b>Viewpoint B</b>	4.8	4.8	4.8	4.8	-0.5
<b>Viewpoint C</b>	5.1	5.2	5.4	5.3	-0.5
<b>Viewpoint D</b>	4.3	3.7	4.1	4.0	-0.9
<b>Viewpoint E</b>	4.9	4.8	4.8	4.8	-0.9
<b>Viewpoint F</b>	5.8	6.0	6.1	6.0	-0.0
<b>Viewpoint G</b>	4.1	4.0	3.9	4.0	-1.3
<b>Viewpoint H</b>	5.1	4.5	4.7	4.8	-0.8
<sup>1</sup> Average visual quality was obtained by adding the ratings for each characteristic and dividing the total by 3. <sup>2</sup> The change in visual quality is the difference between the visual quality of the viewpoint in the simulation visual quality of the viewpoint of the existing condition.					

Source: Caltrans, 2003b



### 3.8.3.1 Discussion of Impacts to View Points – Alternative 4

- **Viewpoint A** (Figure 3-7) - The visual quality of the existing view from this viewpoint would be reduced from a rating of 4.3 (moderate) to 3.8 (moderate). The vividness, intactness, and unity of the view would decrease due to the proposed bridge across Big Bear Lake. While the bridge would not be highly visible at this viewpoint, a section of the proposed bridge would be visible as it crosses Big Bear Lake. The bridge would replace the view of lake waters and the sky, obstructing the initial visual entry to Big Bear Lake. The existing directional signs and above ground telephone pole and lines would be removed under this alternative and would slightly improve the visual quality of the roadway shoulders. However, due to view obstruction and intrusion of the bridge structure, the overall visual quality of Viewpoint A would be reduced. If the road elevation at this point is raised with fill, the result would be a more open view of the lake.
- **Viewpoint B** (Figure 3-8) - The visual quality of the existing view from this viewpoint would be reduced from a rating of 5.5 (moderately high) to 3.4 (moderately low). The proposed bridge would be highly visible from this viewpoint and construction of this alternative would impact the lakeshore and existing trees. Retaining walls, signs, and the traffic signal would replace the two-lane road and the bridge structure would block lake views. All three visual qualities (vividness, intactness, and unity) would be substantially reduced because of the introduction of the larger, elevated bridge structure. Alternative 4 would obstruct the lake view at this location. The contrast of color and shape between the proposed bridge and the lake, as well as changes to the surrounding visual resources, account for the reduction in visual quality at this viewpoint. The proposed bridge (including the concrete support structures in the water), the solid concrete barrier and rails, and the retaining walls are major visual encroachments upon Big Bear Lake, the pine forest, and rock outcroppings.
- **Viewpoint C** (Figure 3-9) – The visual quality of the existing view from this viewpoint would be reduced from a rating of 5.8 (high) to 3.6 (moderate). The proposed bridge would cross the lake and dominate lake views facing the west as seen from this viewpoint. All three visual qualities (vividness, intactness, and unity) would be reduced primarily because of the shape, texture, and proportion of the proposed bridge over the lake. The retaining walls at the ends of the bridge would also be visible across the lake. This alternative would reduce the vividness

of the natural edges created by the hillsides, and the funneled view toward the existing bridge and Bear Creek Canyon. Impacts associated with Alternative 4 on viewpoint C would result in diminished visual enjoyment by lake visitors and recreational users.

- **Viewpoint D** (Figure 3-10) – The visual quality of the existing view from this location would be reduced from a rating of 4.9 (moderately high) to 3.2 (moderately low). All three visual qualities would decrease because of required alterations to rock outcroppings on the south side of the proposed bridge, as well as the shape, texture and bulk of the proposed bridge and support piers. Also, the winding road would be replaced with a bridge that would cross straight over the lake. The cut slopes at the curve would mimic the existing rock outcropping and would be barely discernible. The retaining walls would be visible from this viewpoint due to tree removal from the foreground.
- **Viewpoint E** (Figure 3-11) – The visual quality of the existing view from this viewpoint would decrease slightly from a rating of 5.7 (high) to 4.9 (moderately high). Since the foreground trees would remain, the proposed bridge over the lake would not be highly visible. Similarly, views of retaining walls would be blocked by nearby trees; however, the proposed bridge would introduce a structure over the lake waters resulting in the removal of trees and disturbance of the lakeshore as viewed from the Dam Keeper's House.
- **Viewpoint F** (Figure 3-12) – The visual quality from this viewpoint would change slightly as the proposed bridge crosses the lake and is slightly visible to the Big Bear Lake Southwest Shore Historic District residents. The removal of existing lakeshore vegetation and the introduction of bridge retaining walls would be visible to from this viewpoint. The visual quality rating would decrease from 6.0 (high) to 5.4 (moderately high). While the view largely remains the same, the bridge construction disturbance areas would detract from the natural setting from this viewpoint.
- **Viewpoint G** (Figure 3-13) – The visual quality from this viewpoint would change substantially as the bridge over the lake would obstruct sky and lake views of lakeshore users. The visual quality rating would decrease from 5.3 (moderately high) to 3.0 (moderately low). The proposed bridge across the lake would dominate lake views toward the east. The piers and retaining walls along the

lakeshore would also be highly visible from this viewpoint. The proposed bridge would reduce the vividness of the lake waters and the natural edges created by the lakeshore and hillsides. Alternative 4 would result in diminished visual enjoyment by those who utilize the section of the lake west of the proposed bridge.

- **View Point H** (Figure 3-14) - The visual quality of this viewpoint would decrease from a rating of 5.6 (high) to 3.6 (moderate). All three visual qualities would be reduced due to disturbance of the lakeshore, tree removal, and visibility of the proposed bridge over the lake. The view of lake waters would be replaced by a view of the proposed bridge deck and widened roadways. The bridge would obstruct the nearest views of the lake from this viewpoint, as well as change the natural landscape through the removal of trees and construction of retaining walls along the lakeshore.

Alternative 4 would result in a reduction in visual quality within the project area due to the visual intrusion associated with the proposed bridge over Big Bear Lake and its contrast with the surrounding natural landscape. The low water level in the lake, as seen in the simulations, makes the proposed bridge appear more dominant and higher than it would otherwise be if the lake water rises by 2.5 meters (8 feet; normal water level) or by as much as 4.5 meters (15 feet; dam capacity).

The negative visual quality differences at all eight viewpoints reflect a decrease in the visual quality of existing views after construction of this alternative. Views of the lake waters would change due to the introduction of the bridge structure. This would represent substantial changes in views for recreational shore and lake users as well as for residents near the lake's western end.

At the same time, the views of motorists in vehicles crossing the bridge would improve, as a wider expanse of Big Bear Lake would be visible to vehicles crossing the bridge. Lake waters would be visible to these motorists on both sides of the bridge and would enhance the sense of arrival into Big Bear Lake.

### 3.8.3.2 Discussion of Impacts to Viewpoints – Alternative 5

- **Viewpoint A** (Figure 3-15) – The visual quality of this viewpoint would decrease from a rating of 4.3 (moderate) to 3.6 (moderately low). The vividness, intactness and unity ratings decrease because the focal point of the traveler is directed to the end of the proposed bridge and cut slope on the other side of the bridge, and detracts the traveler's attention from the natural forest and lake setting. The forested canyon view would be replaced by the bridge deck and would reveal the cut slope associated with the construction of this alternative. This effect outweighs the positive results of the signage and power poles that would be removed from the existing bridge area. The elimination of these visual detractors improves the view of Big Bear Lake; however, installation of the traffic signal at the new intersection would also detract from the setting. The primary visual edges of the view across Big Bear Lake would remain intact under this alternative, but the visual quality of the proposed bridge through the canyon would intrude into the natural landscape and reduce the visual quality created by natural canyon setting and nearby pine trees within project area. On the bridge, lake views would include the arches of the existing dam and more expansive lake views would be apparent after crossing the bridge.
- **Viewpoint B** (Figure 3-16) - The visual quality of the existing view from this viewpoint would be reduced from a rating of 5.3 (moderately high) to 4.8 (moderately high). Foreground trees would block views of the proposed bridge over the canyon. However, the retaining walls that would be created with the new roadway east of the proposed bridge would be visible across the lake. The viewpoint vividness decreases because of the removal of rock outcroppings and trees along the hillsides and the introduction of large retaining walls/cut-slopes. The intactness and unity also decrease with this from this viewpoint due to topographic modification of the rocky slopes and outcroppings along the portion of SR-18 on the south side of the Big Bear Lake.
- **Viewpoint C** (Figure 3-17) - The visual quality of the existing view from this viewpoint would be reduced from a rating of 5.8 (high) to 5.3 (moderately high). The vividness, intactness, and unity of this view would decrease slightly due to the cut slopes along the portion of SR-18 on the south side of Big Bear Lake. Retaining walls along the realigned and widened section of SR-18 would also be visible to lakeshore users from this point.



- **Viewpoint D** (Figure 3-18) - The visual quality of the existing view from this viewpoint would be reduced from a rating of 4.9 (moderately high) to 4.0 (moderate). The vividness, intactness and unity of the view would decrease for this viewpoint because the proposed bridge and widened roadway would be visible in the distance and the foreground. Also, the proposed cut-slopes on the south side of SR-18 at the roadway curve would be highly visible from this viewpoint and would substantially modify the rock outcroppings. The wider roadway and bridge structure would detract views of the natural setting and the viewer's attention is focused on the widened roadway pavement.
- **Viewpoint E** (Figure 3-19) – The visual quality of the existing view from this viewpoint would be slightly reduced from a rating of 5.7 (high) to 4.8 (moderately high). The proposed bridge and appurtenances across Bear Creek Canyon would be slightly visible due to the removal of foreground trees and changes to the mountain slopes north of SR-18. The disturbance area and the bridge would be located beyond the stand of trees that define the foreground views to the west. Trees removed from the side slopes would open up lake views and reveal portions of the realigned and widened roadway.
- **Viewpoint F** (Figure 3-20) – The visual quality from this viewpoint would not change from a rating of 6.0 (high). The proposed bridge over Bear Creek Canyon and the widened roadway after the bridge would not be visible from most of the cabins within the Big Bear Lake Southwest Shore Historic District. The segment of SR-18 east of the proposed bridge would be widened and rock outcroppings on both sides of the roadway curve would be cut; however, existing natural features within the area would screen these changes.
- **Viewpoint G** (Figure 3-21) – The visual quality from this viewpoint would change as the bridge over the canyon joins the existing alignment of SR-18 and the retaining walls along the sides of the widened and realigned road become highly visible from across the lake. The visual quality rating would decrease from 5.3 (moderately high) to 4.0 (moderate). The proposed bridge across the canyon would not be highly visible toward the west. Only the retaining walls and cut slopes would contribute to the visual quality change from this viewpoint. This alternative would not affect lake views and lakeshore, but would result in removal of some trees and rock outcroppings on the hillsides on the south side of SR-18.

- **Viewpoint H** (Figure 3-22) – The change in the residents’ views at this viewpoint would be due to the introduction of retaining walls and cut slopes on the south side of SR-18. The retaining walls and widened section of SR-18 would be visible from across the lake from at this viewpoint. The proposed bridge across the canyon would not be visible due to dense stands of intervening trees. Limited change to the foreground trees and the lake would also occur from this viewpoint. Thus, the visual quality of this viewpoint would decrease from a rating of 5.6 (high) to 4.8 (moderately high). No change to foreground and middle ground lake views, trees and lakeshore is expected, but background views of the hillsides, trees, and rock outcroppings would be modified due to the construction impacts associated with the proposed alternative.

Alternative 5 would introduce a bridge structure over Bear Creek Canyon, which would decrease the visual quality of the canyon area. Retaining walls and cut slopes proposed at six locations would substantially modify rock outcroppings and hillsides. These changes to the existing landscape would be visible to most viewers. However, no change to lake waters would occur under this alternative. The negative visual quality differences at seven of the viewpoints reflect a decrease in visual quality of existing views after construction of the bridge under this alternative.

Both alternatives would result in a reduction in visual quality of the project area. Alternative 5 would result in a lower visual quality change, when compared to the change in visual quality at the same viewpoints for Alternative 4. Alternative 5 would also be less visually intrusive for major viewer groups in the area due to its location within the canyon area and its less accessible location to viewers. The major viewer groups in the area include recreational users on the lake and lakeshores, residents of cabins in the Big Bear Lake Southwest Shore Historic District and on the north side of the lake, and visitors to the Dam Keeper’s House. The visual quality of the project area, as seen by these viewer groups, would be better for Alternative 5 than under Alternative 4.

Thus, Alternative 5 is “visually preferred” when compared with Alternative 4 because the contrast with the characteristic landscape is less than that of Alternative 4. While retaining walls and cut slopes would be greater in number and size for Alternative 5, the intrusion into the lake and onto the lakeshore is minimal.

### **3.8.4 Temporary Impacts**

The simulations used in the VIA are the maximum visual reductions. The simulations of the project area are prior to mature growth of vegetation. During construction, removal of native vegetation and natural topography will be highly visible. It could take from 50 to 100 years for the vegetation in the project area to reach maturity. All vegetation removal would be done in accordance with special provisions to minimize removal of native vegetation. Revegetation of disturbed areas would occur in general accordance with the conceptual revegetation plan provided in Appendix E.

### **3.8.5 Avoidance, Minimization, and Compensation**

#### **3.8.5.1 Context Sensitive Design**

The Department has adopted a policy for context sensitive design solutions as a way to improve the planning, design, construction, maintenance and operation of transportation projects by taking into account community values and the natural environment, and not just transportation objectives. Context sensitive design/solutions are also a requirement on Federal-aid projects as authorized through the Intermodal Surface Transportation Efficiency Act of 1991 and the National Highway System Designation Act of 1995. Through this legislation, Congress provided dramatic new flexibilities in funding, stressed the importance of preserving historic and scenic values, and provided for enhancing communities through transportation improvements. Context sensitive design has been considered and incorporated into the Big Bear Lake Bridge Replacement Project throughout the planning phase through coordination with the various affected agencies, community meetings, and the environmental process. Context sensitive design solutions will continue to be explored during the design and construction phases of the proposed project.

The proposed bridge alternatives would be located in an area containing visual resources considered important by the community, region, and USFS. Compatibility with the existing natural environment and protection of existing environmental resources in the project area has been a high priority throughout the development process and through the evaluations of context sensitive solutions.

As reflected in the project alternative simulations, a number of preliminary design details have been incorporated into the proposed bridge structures to reflect feasible refinements that would allow the proposed bridge to better complement the natural environment. The bridge design and treatments shown in the simulations represent

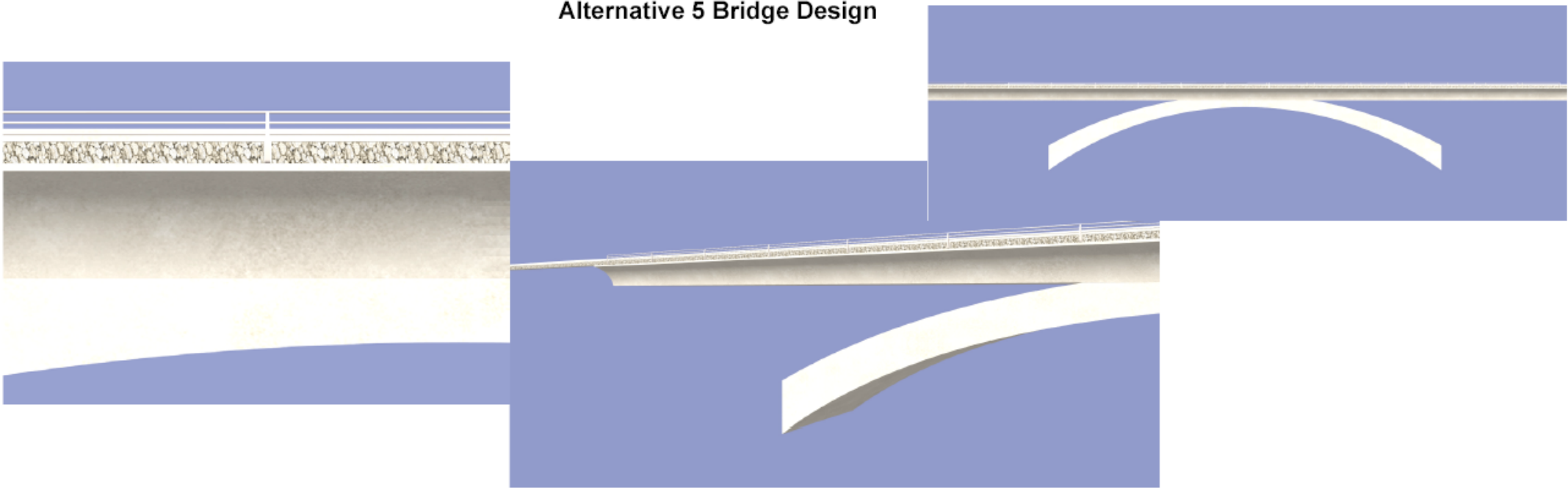
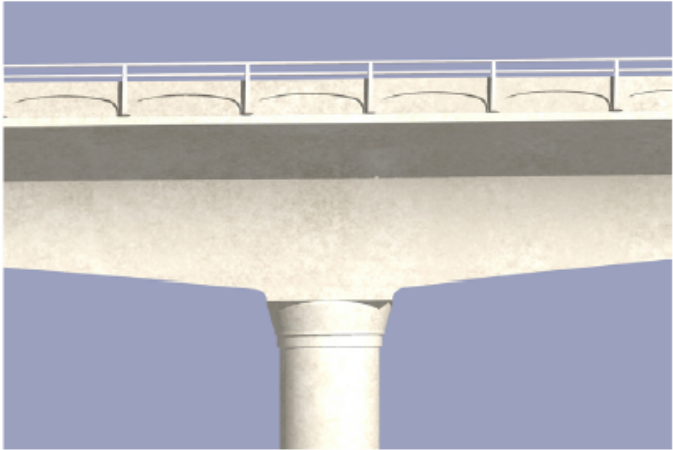
some of the feasible mitigations that could be incorporated into the project to reduce the project's adverse impacts on the visual quality of the natural landscape. They **do not** represent the final design and treatments that would be included in the preferred alternative and incorporated into the MOA required for completion of the Section 106 process (see Section 3.9.1). However, they have been included in the simulations to demonstrate the Department would not be construct a bridge without consideration of its aesthetic characteristics and compatibility with the surrounding environment. The mitigation shown in the simulations included the following:

- The alternatives were designed to minimize disturbance areas, which will allow for maximum preservation of existing vegetation and rock outcroppings;
- Modification (blasting or other) of rock outcroppings features terracing or irregular surfacing of rocks;
- Disturbed areas show revegetation of approximately 5-7 years (See Appendix E for conceptual revegetation plan) of regrowth;
- A natural stone color is used for the bridge structures;
- Low side rails are provided on the bridge to minimize view obstruction;
- Steel posts and rails are used as barriers along the roadsides, featuring weathered steel;
- Retaining walls have a textured rock surface to simulate the existing rock surfaces within the project area; and
- A rock veneer is provided on the sides of the proposed bridge for Alternative 5.

Figure 3-23 depicts the conceptual bridge detail designs for Alternatives 4 and 5 and Figure 3-24 depicts possible conceptual retaining wall surface treatment detail for retaining walls that could be incorporated into the project to reduce the adverse visual impacts; however, final bridge design and bridge and retaining wall surface treatments are pending completion of the MOA for Section 106 (see Section 3.9.1).



Figure 3-23: Alternative 4 and 5 Conceptual Bridge Designs



**Figure 3-24: Conceptual Retaining Wall Surface Treatments**



### 3.8.5.2 Additional Measures

Both Alternatives 4 and 5 would result in permanent visual impacts and a reduction of the visual quality within the project area. The following recommended measures would be appropriate for either of these alternatives. The following mitigation measures are recommended to minimize visual impacts associated with selection of a preferred alternative.

- During final design, the Department will coordinate with the USFS regarding acceptable blasting techniques for the project. Excavating techniques allowing for varying rock surfaces shall be utilized to reproduce the existing irregular form and character of the existing granite outcroppings;
- During final design activities, the Department will design a restoration landscape plan to minimize the negative visual contrasts between the proposed structures and appurtenances and the characteristic natural landscape. A conceptual revegetation plan developed for this project is provided in Appendix E. The objectives of the restoration landscape plan include: a) restoration of native vegetation structure and function in disturbed sites by initiating a successional trajectory toward mature and undisturbed adjacent native vegetation structure and function. This includes the return of the site to habitat suitable for native wildlife; b) restoration of the natural landscape visual quality affected by the proposed project within the project area; c) prevention of soil loss, erosion, and safety concerns by stabilizing slopes affected by the proposed project; and d) prevention of the introduction and/or spread of non-native species.

The landscape plan would retain the maximum amount of existing vegetation and rock features by minimizing the amount of clearing and earthwork. The landscape plan would cover all areas disturbed during construction including staging areas, borrow pits and other areas where surface disturbance occurs. A species list will be developed to match as closely as possible the species composition of adjacent vegetation with similar soil, slope and aspect. Ideally, all plant materials used for restoration will be collected locally. If seed cannot be locally collected, a plant palette will be developed in coordination with the USFS. The landscape plan would include a suitable composition of vegetation (native trees, shrubs, and grasses) to reduce the visual contrasts of form, scale, color, texture and line. Hydroseeding and replanting would occur in the early fall, prior to the first snow fall, or early spring after the snowmelt.

Other components of the landscape plan would include: measures for site preparation, restoration, timing and methodology, planting, maintenance and monitoring of revegetated areas, success criteria, remediation requirement or corrective measures to ensure success criteria will be met, and regular monitoring and reporting to the USFS.

- During final design, the color palette for the bridge structure will complement the natural stone color of the surrounding granite outcroppings and/or the oxidized color of excavated slopes. The color of the concrete in the existing dam should also be considered;
- During final design, retaining walls should be designed in a manner that would enhance form, scale, material/texture, color and details with respect to the characteristics of the surrounding natural landscape;
- During final design, east and west approaches to the bridge should be designed in a manner that the visual effect of their alignment, width and profile is minimized with respect to the characteristic natural landscape;
- During final design, highway appurtenances (lights, signs, traffic control devices and guard rails) should be selected so that their form, scale, color, spacing, and the configuration of the standards and supports are enhanced with respect to the characteristic natural landscape;
- During the bridge-type selection process of final design, Caltrans will coordinate with the USFS and the city of Big Bear Lake on the bridge's aesthetic treatment. The scale, color, and details of the final bridge design should reflect the characteristics of the natural landscape, to the extent feasible. Discussions should include, but not be limited to, the bridge structure type, rail design, substructures, retaining wall abutments, and revegetation plantings; and
- During construction activities, Caltrans will treat excavated cut slopes with an environmentally safe oxidizing agent to simulate an "aged" rock surface. Some rocks that are removed during construction would be reused on disturbed areas where appropriate and feasible, and without compromising public safety.

The proposed mitigation measures above are recommended and are not intended to be all-inclusive. Mitigation will be finalized within the final environmental document, subsequent to the Section 106 MOA. See the Department's Visual Impact Assessment (bound separately) for complete details of the analysis.

## **3.9 Cultural Resources**

### **3.9.1 Regulatory Setting**

"Cultural resources" as used within this document refers to historic and archaeological resources. The primary federal laws dealing with historic and archaeological resources include:

The National Historic Preservation Act, as amended, (NHPA) sets forth national policy and procedures regarding "historic properties" -- that is, districts, sites, buildings, structures and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to consider the effects of their undertakings on such properties, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800).

The Archaeological Resources Protection Act (ARPA) protects archaeological resources on land owned by the United States or Indian tribes. ARPA requires a permit be obtained before excavation of an archaeological resource on such land can take place.

Cultural resources on or eligible for the National Register of Historic Places (NRHP) are also protected by 49 USC 303 (formerly Section 4(f) of the U.S. Department of Transportation Act). Please see Appendix F for additional information.

Under California law, cultural resources are protected by the California Environmental Quality Act (CEQA) as well as Public Resources Code Section 5024.1, which established the California Register of Historic Places. Section 5024.5 requires state agencies to provide notice to, and to confer with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historic resources.

The term *historic property* refers to any cultural resource (i.e., prehistoric or historic district, site, building, structure, or object) included in, or eligible for inclusion in, the NRHP. The Secretary of the Interior maintains the NRHP and has established the



Criteria for Evaluation as the basis for judging a property's significance and qualification for the NRHP (36 CFR Part 60). When evaluated within its historic context, a property may be significant for one or more of the following four criteria:

**Criterion A** – its association or linkage to events important in the past.

**Criterion B** – its association or linkage to persons important in the past.

**Criterion C** – its physical design or construction, including such elements as architecture, landscape architecture, engineering, and artwork.

**Criterion D** – its ability to yield important information about prehistory or history.

The assessment of a project's effects on historic properties uses Section 106 Criteria of Effect and Adverse Effect. A project is considered to have an adverse effect if the project may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP. Such alteration would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

The Section 106 cultural resources analyses for this document were prepared pursuant to Section 106 Regulations 36 CFR 800.8, which included the general principals regarding coordination with NEPA. Although the cultural resources technical studies for this project were prepared prior to revisions to the Section 106 Regulations of the NHPA (revised January 11, 2001), the Department reviewed the technical documents and their findings and determined that the compliance documentation meets requirements per the current Section 106 Regulations of the NHPA (revised January 11, 2001; amended August 4, 2004).

Cultural resources studies for this project were prepared in accordance with the Section 106 Regulations of the ACHP, prior to publication of the revised regulations effective January 11, 2001. Pursuant to 36 CFR Part 800.4 (effective October 1, 1986), the project's Area of Potential Effects (APE) was established (see Finding of Effect Exhibit A). Then, field surveys were conducted and the identification and evaluation of cultural resources within the APE were documented in a Historic Property Survey Report (HPSR [February 1991, and first supplemental HPSR September 1997]) with appended Archaeological Survey Report (ASR [September 1997]), Historic Resource Evaluation Report (HRER [October 1990]), Historic

Architectural Survey Report (HASR [November 1989]). The HPSR is bound in a separately and is incorporated in this DEIS/R by reference.

Pursuant to 36 CFR Part 800.5 and Part 800.9 (effective October 1, 1986), project effects on historic properties within the APE were assessed in a Finding of Effect (FOE [September 1997]) report, which included proposed mitigation measures. The FOE is bound in a separate volume. Final mitigation measures will be stipulated in a Memorandum of Agreement (MOA) prepared in according to Stipulation XI.D of the January 2004 Programmatic Agreement among the FHWA, ACHP, the SHPO, and the Department to be executed after circulation of the DEIS/R and identification of the preferred alternative.

### **3.9.2 Affected Environment**

The APE boundary defines the geographic area within which the project may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist (see HPSR bound separately).

Based on the findings of the ASR, the HPSR concluded there are no NRHP eligible archaeological resources found within the project APE. Based on the findings of the HRER and HASR, the HPSR concluded two (2) historical resources within the APE were previously determined eligible for inclusion in the NRHP, and one (1) historical resource was evaluated as potentially eligible for listing on the NRHP (see Figure 3-25: Eligible NRHP Properties; [Caltrans, 1997a]):

- 1884 Bear Valley Dam;
- Dam Keeper's House (1890); and
- Big Bear Southwest Shore Historic District (1911-1941).

The State Historic Preservation Officer (SHPO) concurred with the adequacy of the HPSR (February 1991) and the determinations of NRHP eligibility of historical resources within the APE on May 2, 1991. An HPSR, 1<sup>st</sup> Supplemental was prepared (September 1997) and received SHPO concurrence on December 4, 1997 (see Appendix G). Subsequently, there have been no modifications to the project to warrant further Section 106 studies. Therefore, the previously prepared documents and their determinations remain valid.

### **1884 Bear Valley Dam**

The 1884 Bear Valley Dam was determined eligible for listing on the NRHP under Criterion A (agriculture and economics) at the local level of significance and under Criterion C (engineering) at the state level of significance. The period of significance is 1884.

The 1884 Bear Valley Dam is a single arch, granite masonry structure located in the San Bernardino Mountains. Designed by the Redlands engineer-developer Frank E. Brown for the Bear Valley Land and Water Company, it was constructed across Bear Creek at the narrow western end of Bear Valley, establishing Big Bear Lake. This reservoir had a storage capacity of approximately 31,200,000 cubic meters (25,300 acre feet). It was created to provide irrigation water for the developing citrus industry in the eastern San Bernardino Valley. In 1911, the dam became submerged when the company expanded the reservoir by constructing a higher dam downstream, at a distance of approximately 61 meters (200 feet) from the 1884 structure. The 1884 Bear Valley Dam is designated as California Historical Landmark No. 725; American Society of Civil Engineers, Los Angeles Section, Landmark No. 17; and an American Water Landmark of the American Water Works Association, California Section (Caltrans, 1997a).

### **Dam Keeper's House**

The Dam Keeper's House was determined eligible for listing on the NRHP under Criterion A (agriculture and economics) and under Criterion C (architecture) at the local level of significance. The period of significance is 1890.

Sited to overlook the 1884 Bear Valley Dam, the Dam Keeper's House is perched on a rocky outcrop near the southwest shore of Big Bear Lake in the San Bernardino Mountains. The building is located south of SR-18; a winding, narrow dirt road provides access to it from the highway. The Bear Valley Irrigation Company (formerly Bear Valley Land and Water Company) constructed the building in 1890; it replaced a log cabin owned by the company that had burned down. Constructed with locally quarried rough-cut granite, the Dam Keeper's House is a one-and-a-half story rectangular building with a steeply pitched gable roof (Caltrans, 1997a).

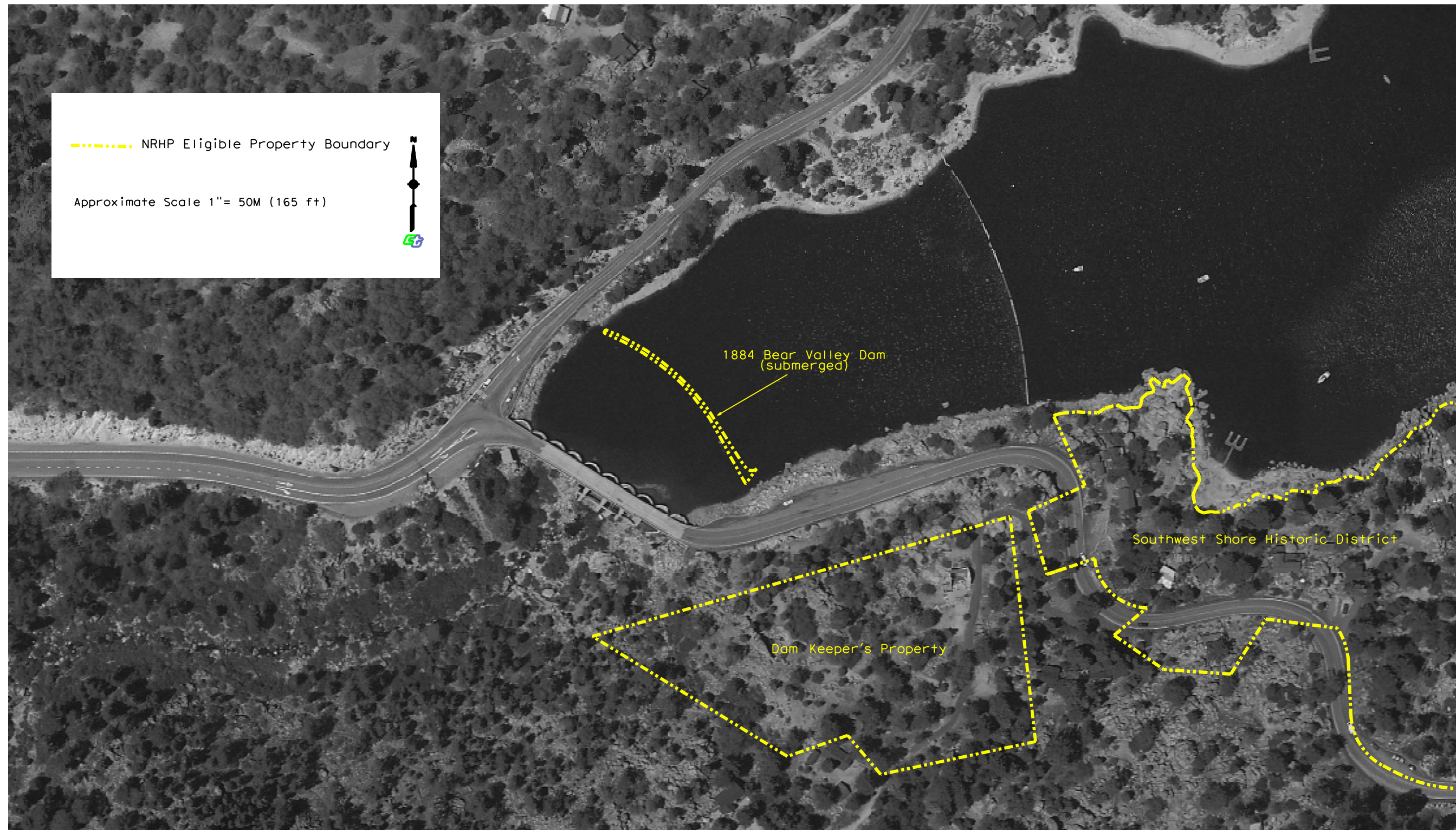
The Dam Keeper's House is approximately 65 meters (215 feet) and 120 meters (400 feet) from the southern bridge abutments for Alternatives 4 and 5, respectively.

### **Big Bear Southwest Shore Historic District**

The Big Bear Southwest Shore Historic District was determined eligible for listing on the NRHP under Criterion A (recreation) and under Criterion C (architecture) at the local level of significance. The period of significance is 1911-1941.

The Big Bear Southwest Shore Historic District is located east of the Dam Keeper's House and extends along the irregular shoreline of Big Bear Lake in the San Bernardino Mountains. State Route 18 primarily delineates the district's southern boundary; curvilinear, narrow dirt roads provide access to the district from the highway. The district is comprised of seventy-seven privately owned cabins and a community garage, all on parcels leased from the USFS. Constructed between 1911 and 1941, seventy-two buildings are contributors and six buildings are non-contributors to the historic district. These recreational cabins are arranged informally within the Big Bear Tract and along with their setting, were designed to be in harmony with the natural landscape. Their small size and rustic design are characteristic features and reflect early attempts by the USFS to regulate compatible building development within a natural setting (Caltrans, 1997a).

Figure 3-25: Eligible NRHP Properties





The HPSR concluded three historic properties are within the project's APE (see HPSR Map B). The project's effects on these historic properties were assessed in the FOE (see FOE [September 1997]). It concluded the two build alternatives proposed (Alternative 4 and Alternative 5) will have an adverse effect on two historic properties: the Dam Keeper's House and the Big Bear Southwest Shore Historic District and no effect on one historic property; the 1884 Bear Valley Dam. The SHPO concurred with the determination of effects on December 4, 1997 (see Appendix G). While the effects (FOE) Section 106 finding occurred in 1997, the project alternatives, as proposed, remain largely the same. The project effects on historic properties are summarized in the table 3-10 below (Caltrans 1997b).

**Table 3-10: Summary of Effects to Historic Properties by Alternative**

Alternative	Historic Property	Effect
Alt. 1 – No Action / No Build	1884 Bear Valley Dam	No Effect
	Dam Keeper's House	No Effect
	Big Bear Southwest Shore Historic District	No Effect
Alt. 4 – Bridge over Big Bear Lake	1884 Bear Valley Dam	No Effect
	Dam Keeper's House	<b>Adverse Effect</b>
	Big Bear Southwest Shore Historic District	<b>Adverse Effect</b>
Alt. 5 – Bridge over Bear Creek	1884 Bear Valley Dam	No Effect
	Dam Keeper's House	<b>Adverse Effect</b>
	Big Bear Southwest Shore Historic District	<b>Adverse Effect</b>

Caltrans, 1997b

Under 49 USC 303 (Section 4(f) [formerly, Section 4(f) of the U.S. Department of Transportation Act of 1966]), the two build alternatives result in the use of property from the Dam Keeper's House and/or from the Big Bear Southwest Shore Historic District. Section 4(f) prohibits use of land from any historic property on or eligible for the NRHP unless there is no prudent and feasible alternative to such use, and the project must include all possible measures to minimize harm. The implementing regulations for Section 4(f) are published in 23 CFR Part 771. The Section 4(f) analysis is provided in Appendix F.

### **3.9.3 Permanent Impacts**

Figures 3-26 and 3-27 below show the potential impacts from the proposed alternative alignments and their construction impact areas to the NRHP properties.

#### **No Action/No Build**

The No Action/No Build Alternative will not affect any of the three historic properties within the APE; thus, this alternative will not have any permanent impacts NRHP eligible properties.

#### **Alternative 4**

Alternative 4 will have an adverse effect on the Dam Keeper's House and on the Big Bear Lake Southwest Shore Historic District (Caltrans, 1997b).

#### **Dam Keeper's House**

- This alternative will introduce visual elements incompatible with the character of the historic property's surrounding setting, which contributes to its significance. The intruding size, form, and material of the proposed bridge, as well as the retaining walls and the highway appurtenances will substantially alter and diminish the existing open space, natural features, and rural character.

#### **Big Bear Southwest Shore Historic District**

- This alternative requires incorporation of 0.04 hectares (0.1 acres) of the SSHD into SR-18. This will result in physical alteration of the property's setting, which contributes to its significance. The proposed right of way includes a portion of the existing access/parking (see Figure 3-5) for cabins 68, 71 and 72, which are contributors to the district and are located near its western boundary.
- This alternative will introduce visual elements incompatible with the character of the historic property's surrounding setting, which contributes to its significance. The intruding size, form, and material of the proposed bridge, the retaining walls and the highway appurtenances will substantially alter and diminish the existing open space, natural features, and rural character of the setting.

## **Alternative 5**

Alternative 5 will have an adverse effect on the Dam Keeper's House and on the Big Bear Lake Southwest Shore Historic District.

### **Dam Keeper's House**

- This alternative requires incorporation of 0.10 hectares (0.25 acres) of the Dam Keeper's House property into SR-18. This will result in physical alteration of the property's setting, which contributes to its significance.
- This alternative will introduce visual elements incompatible with the character of the historic property's surrounding setting, which contributes to its significance. The intruding size, form, and material of the proposed bridge, the retaining walls and the highway appurtenances will moderately alter and diminish the existing open space, natural features, and rural character of the setting.

### **Big Bear Southwest Shore Historic District**

- This alternative requires incorporation of 0.03 hectares (0.07 acres) of the SSHD into SR-18. This will result in physical alteration of the property's setting, which contributes to its significance.
- This alternative will introduce visual elements incompatible with the character of the historic property's surrounding setting, which contributes to its significance. The intruding size, form, and material of the proposed bridge, the retaining walls and the highway appurtenances will moderately alter and diminish the existing open space, natural features, and rural character of the setting.

### **3.9.4 Temporary Impacts**

There are no temporary impacts to cultural resources. Due to the permanent modification of the historic setting, all impacts to cultural resources associated with the proposed project are considered permanent.

Figure 3-26: Impacts to NRHP Eligible Properties – Alternative 4

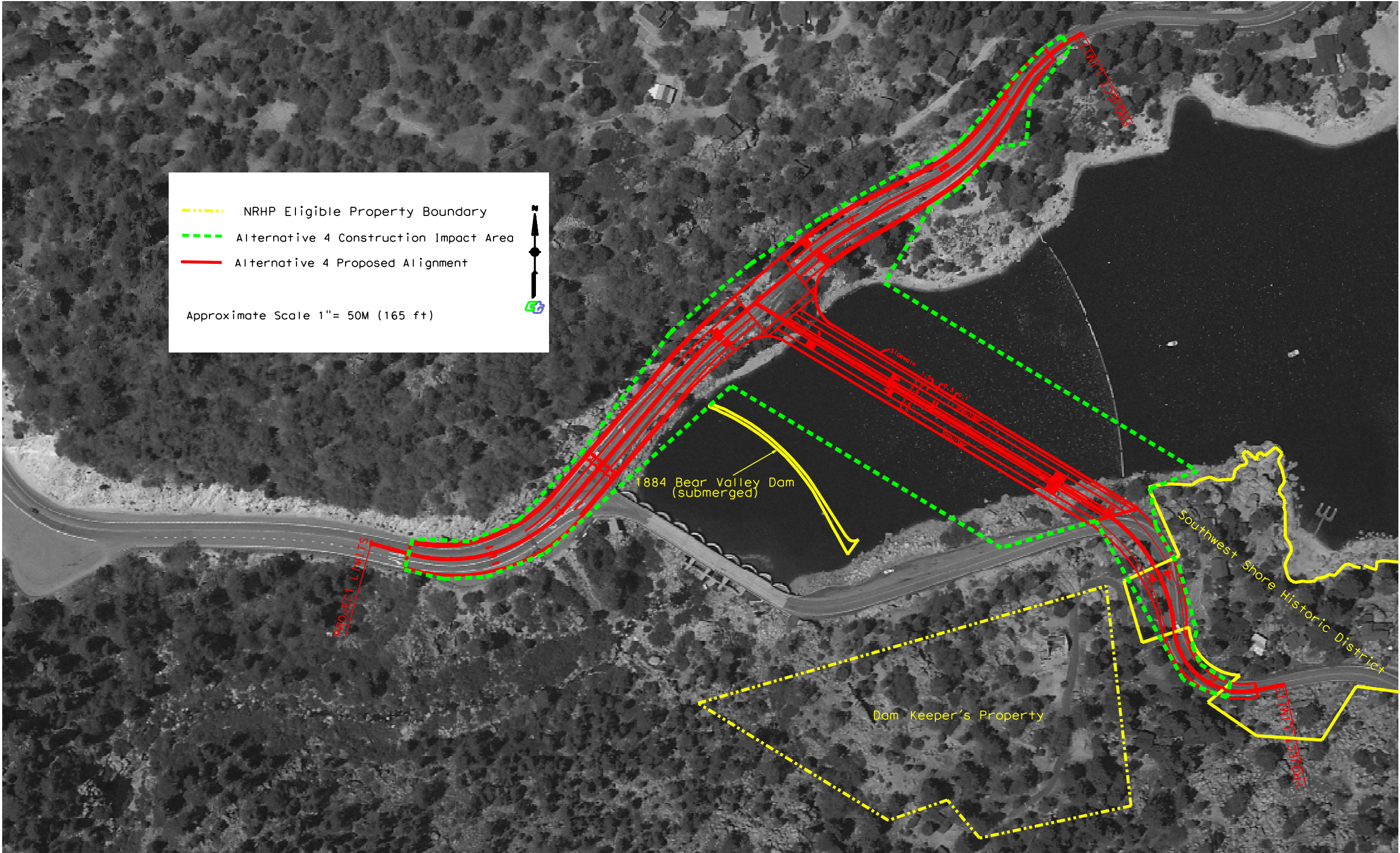
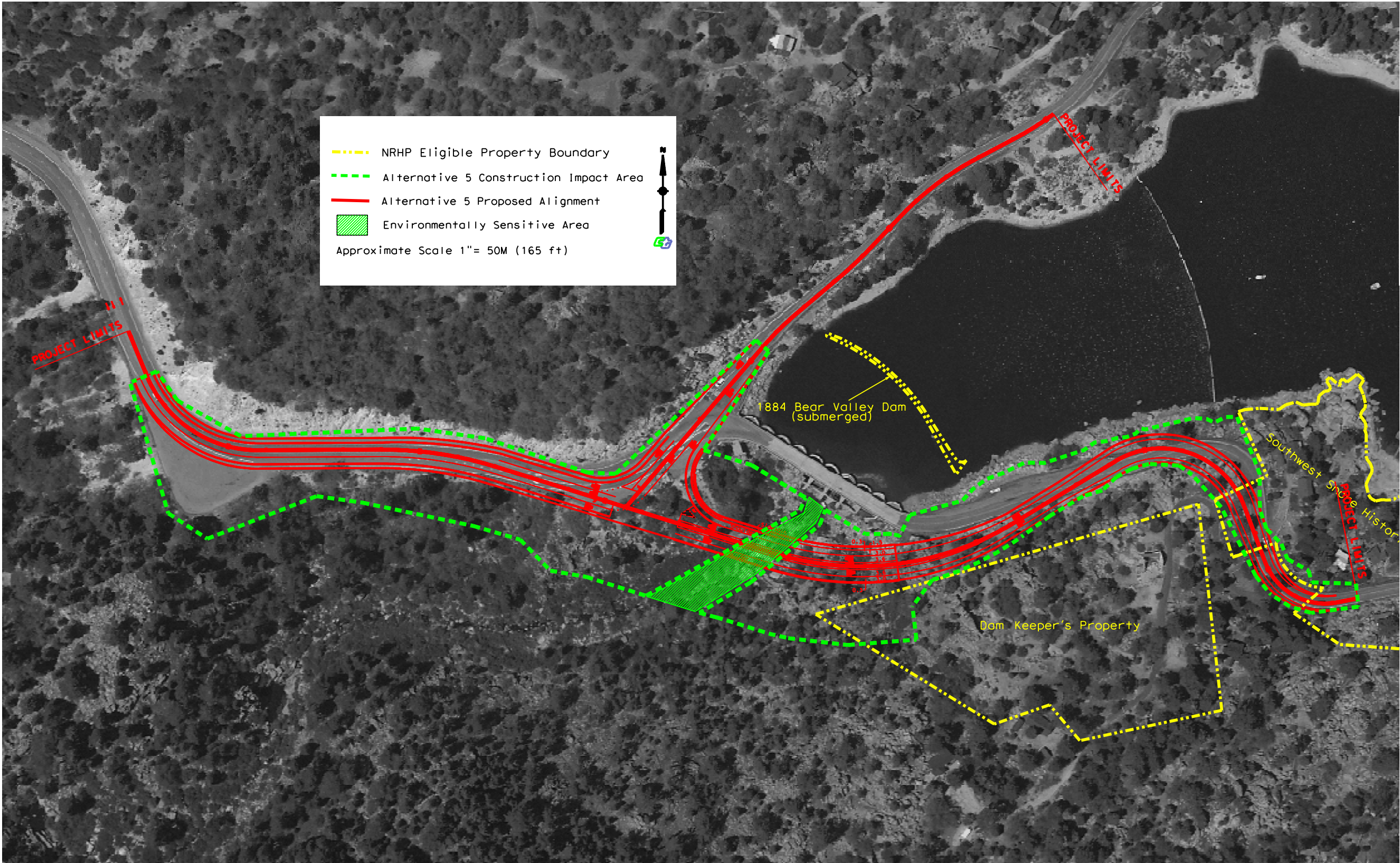




Figure 3-27: Impacts to NRHP Eligible Properties – Alternative 5





### 3.9.5 Avoidance, Minimization and Compensation Measures

Mitigation measures are proposed to minimize the project's adverse effect on the Dam Keeper's House and on the Big Bear Southwest Shore Historic District. After identification of the preferred alternative, final mitigation measures will be stipulated in a MOA between the FHWA, the USFS, the SHPO, and the ACHP. The MOA will be included in the Final Environmental Impact Statement/Report.

Measures to minimize the adverse effect on these historic properties are based on FHWA Mitigation Options Related to Historic and Archeological Properties (October, 1983); and on the concepts, elements and principles of the USFS landscape management program (National Forest Landscape Management, Volume 1 February 1973; National Forest Landscape Management, Volume 2, Chapter 1- "The Visual Management System," April 1974; National Forest Landscape Management, Volume 2, Chapter 4 – "Roads," March 1977).

Impacts associated with Alternative 4 and Alternative 5 on each historic property would be minimized through the following measures (Caltrans, 1997b).

- **Bridge** – The form, scale, color, and details of the bridge would be enhanced for compatibility with the historic properties and characteristics of the natural landscape.
- **Approach Roadways** – The east and west bridge approaches would be designed to ensure that the visual effect of their alignment, width, and profile is minimized with respect to characteristics of the natural landscape.
- **Earthwork** – Blasting and/or excavation of excess material would be handled in a manner that retained the irregular shape and character of the granite rock outcroppings, to the maximum extent possible; vibration associated with these techniques would be minimized to avoid affecting the three historic properties.
- **Retaining walls** – The form, scale, material/texture, color and retaining wall details would be enhanced for compatibility with the historic properties and natural landscape characteristics.

- **Highway appurtenances** –All appurtenances (i.e., lights, signs, traffic control devices, and guard rails) would be designed in a manner such that their form, scale, color, spacing, and configuration would be enhanced with respect to the historic properties and characteristics of the natural landscape.
- **Landscape plan** – Any negative visual contrast between the structures (bridge and retaining walls) and appurtenances and characteristics of the natural landscape would be minimized. A maximum amount of existing vegetation and rock features would be retained as a result of any clearing and earthwork caused by construction activities. A compatible composition of new vegetation (e.g., screening elements, planting holes/pockets in rocks and retaining walls) would be included. The composition would reduce visual contrasts of the project's form, scale, color, texture and line to the historic properties and characteristics of the natural landscape.

### ***Physical Environment***

## **3.10 Hydrology and Floodplains**

### **3.10.1 Regulatory Setting**

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A; to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments;
- Risks of the action;
- Impacts on natural and beneficial floodplain values;
- Support of incompatible floodplain development; and
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The 100-year floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the 100-year floodplain.”

“Significant encroachment” as defined at 23 CFR 650.105 is a highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction or flood related impacts:

- A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route;
- A significant risk (to life or property); or
- A significant adverse impact on natural and beneficial floodplain values.

### **3.10.2 Affected Environment**

The project area presents a unique situation for a floodplain evaluation. Alternative 4 would be constructed over Big Bear Lake. The lake's floodplain is defined by the water level at which it overtops the dam (i.e. Big Bear Lake's high water elevation). Alternative 5 would be constructed over Bear Creek Canyon. The creek floods only when the lake overtops the dam or the lake reaches a critical level and water is released through the spillways. The overtopping elevation (the elevation that water flows over the top of the dam) of the dam is reported to be 2,055.3 meters (6743.2 feet). Subsequent to overtopping, the lake level would rise 0.457 meters (1.5 feet) over the dam crest during a 100-year storm event to a water elevation of 2,055.76 meters (6,744.7 feet). During the probable maximum flood event, it is predicted the water elevation would rise 1.07 meters (3.5 feet) to a water elevation of 2,056.37 meters (6746.7 feet) (Caltrans, 2002d). The lake has overtopped the dam 10 times since its creation (1916, 1917, 1922, 1923, 1938, 1939, 1969, 1970, 1980 and 1983 [SARQWCB, 2002; Caltrans, 2002d]).

Since 1974, the water level in Big Bear Lake has been managed for recreation. The majority of water released downstream from the dam is required by a lawsuit settlement, between Caltrout Inc. and the BBMWD, to improve downstream fish habitat. The floodplains and their relationship to both Alternatives 4 and 5 are shown in Figures 3-28 and 3-29, respectively.

Figure 3-28: Floodplain Impacts – Alternative4

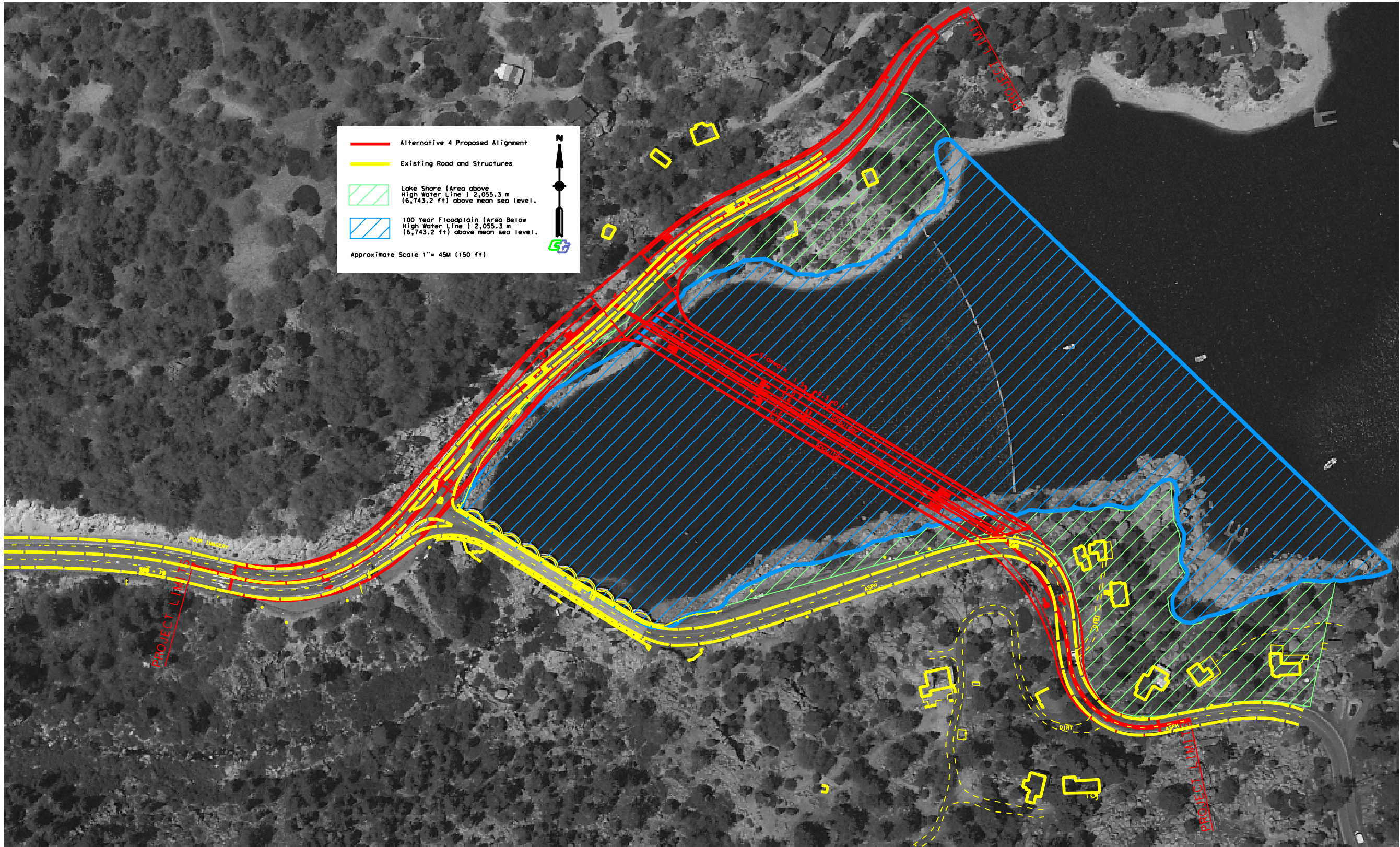
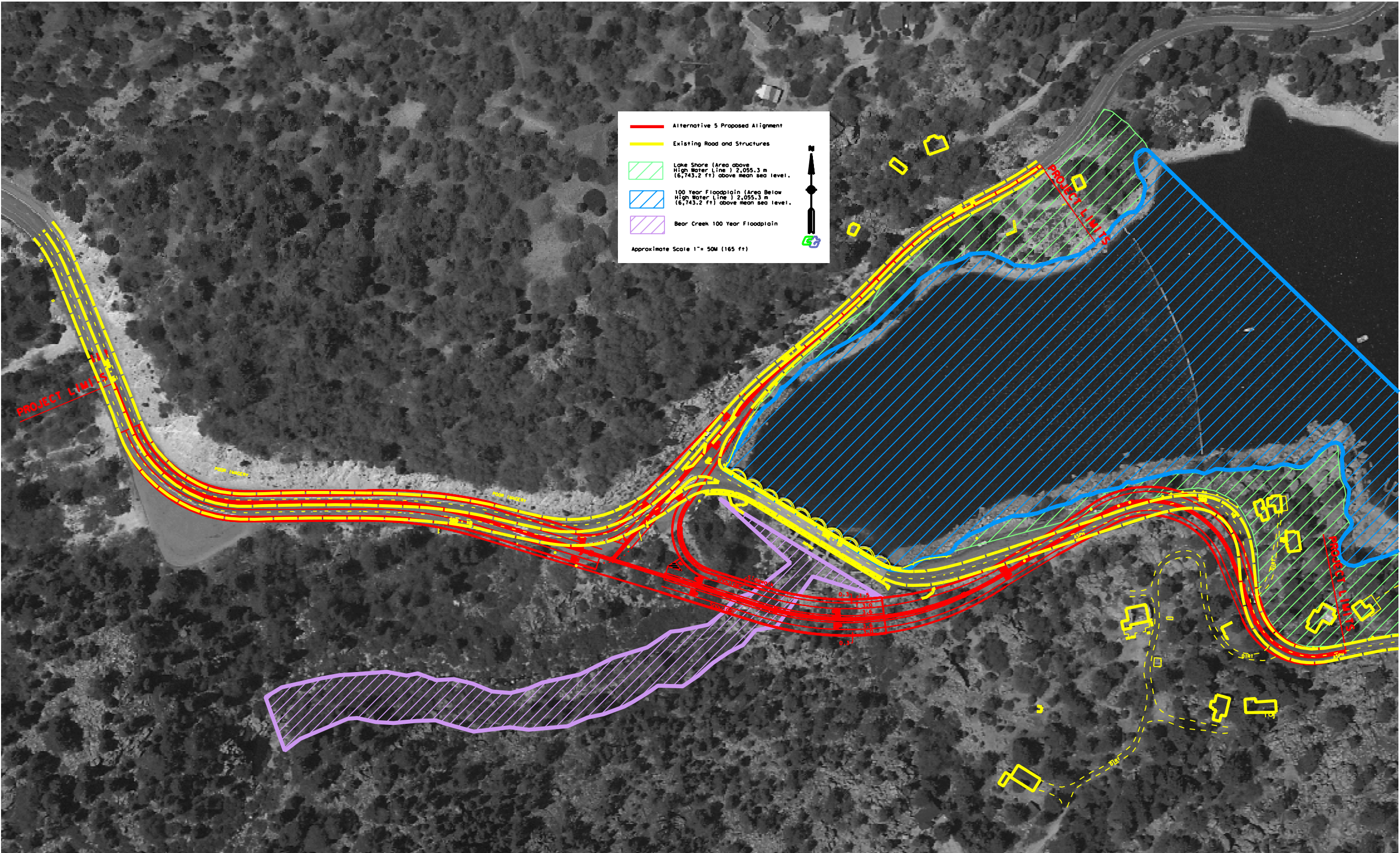




Figure 3-29: Floodplain Impacts - Alternative 5





### **3.10.3 Permanent Impacts**

#### **No Action/No Build**

This alternative would have no permanent impacts on the floodplains or their beneficial uses. The No Action/No Build Alternative is entirely outside of both floodplains within the project area.

#### **Alternative 4**

Alternative 4 would require two pier supports within the 100-year floodplain; however, the volume of the piers is small when compared with the volume of the lake. Any effect from the piers on the water surface profile of the lake would be negligible. Additionally the abutments for this alternative would be located outside of the 100-year floodplain (above the overtopping water elevation of 2,056 meters [6,745 feet] above mean sea level) (Caltrans, 2002d; Caltrans, 2004b).

The proposed structure depth is 3.73 meters (12.25 feet). Using the proposed vertical profile for Alternative 4, a minimum free board (from the bottom of the structure to water surface elevation) of 2.5 meters (8.1 feet) is expected even during maximum flood conditions. Therefore, no overtopping of the roadway approaches or bridge would occur (Caltrans, 2002b).

In accordance with 23 CFR 650.111 (see Appendix H: Location Hydraulic Summary Reports), the following information is offered regarding Alternative 4 floodplain encroachments:

- The proposed encroachment would not constitute a significant encroachment as defined in 23 CFR 650.105;
- The proposed encroachment would not support incompatible floodplain development;
- There would be no loss of natural or beneficial values of the floodplain associated with the construction of the two piers; and
- Measures to minimize the effect on the base floodwater surface elevation at each encroachment will be incorporated into the final design if Alternative 4 is selected as the preferred alternative.

## **Alternative 5**

The proposed arch substructure would be located above the 100-year floodplain of Bear Creek. Additionally, the curve realignment onto the Big Bear Lake shoreline would also be located above the 100-year floodplain of Big Bear Lake. Alternative 5 would not require any permanent fill within any 100-year floodplain. There would be no permanent floodplain impacts associated with Alternative 5.

### **3.10.4 Temporary Impacts**

#### **No Action/No Build**

This alternative would have no temporary impacts on the floodplains or their beneficial uses. The No Action/No Build Alternative is entirely outside of both flood plains within the project area.

## **Alternative 4**

Construction of the retaining walls and abutments for this alternative would require ground disturbance and/or vegetation removal along the shoreline and within the Big Bear Lake floodplain. Disturbance would be limited to movement of people and equipment within the construction impact area. No dredge or fill would be allowed below 2,056 meters (6,745 feet) above msl.

Additionally, construction barges would be anchored to the lake bottom. Anchoring devices would likely be placed on the lake bottom during construction and removed from the lake or shore after construction. Impacts from these activities may include minor increases in turbidity near the lake bottom.

## **Alternative 5**

Realignment of the first curve east of the dam along the south shore would require ground disturbance and vegetation removal along the shoreline and within the Big Bear Lake floodplain. Disturbance would be limited to movement of people and equipment within the construction impact area. No dredge or fill would be allowed below 2,056 meters (6,745 feet) above msl.

Additionally, construction activities in the canyon will require ground disturbance and vegetation removal adjacent to the Bear Creek floodplain. Impacts from these activities may include minor increases in sedimentation and turbidity locally within the creek.

### **3.10.5 Avoidance, Minimization and Compensation Measures**

Areas temporarily impacted during construction would be recontoured, stabilized, and revegetated. Revegetation would occur in disturbed areas in accordance with the conceptual revegetation plan in Appendix E. No impacts to natural or beneficial values of the floodplains would occur with any of the proposed alternatives.

## **3.11 Water Quality and Stormwater Runoff**

### **3.11.1 Regulatory Setting**

The primary law regulating water quality is the Clean Water Act, as amended. Section 401 of the Act requires a water quality certification from the State Board or Regional Board when a project, 1) requires a Federal license or permit (Section 404 permit is the most common federal permit on Department projects), and 2) will result in a discharge to waters of the United States.

Section 402 of the Clean Water Act establishes the National Pollution Discharge Elimination System (NPDES) permit system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. To ensure compliance with Section 402, the State Water Resources Control Board (SWRCB) has issued a NPDES Statewide Storm Water Permit to regulate storm water discharges from Department facilities. The permit regulates storm water discharges from Department right-of-way both during and after construction, as well as from existing facilities and operations.

The SWRCB has issued the Department a construction general permit for all construction activities greater than 0.4 hectares (1 acre), are part of a common plan of development exceeding 2 hectares (5 acres) or have the potential to significantly impair water quality. All Department projects are subject to the general permit require a Storm Water Pollution Prevention Plan (SWPPP), while all other projects require a Water Pollution Control Program (WPCP). Subject to the Department's review and approval, the contractor prepares the SWPPP or WPCP prior to soil disturbing activities. The WPCP and SWPPP identify construction activities that may discharge

pollutants into storm water and measures to control these pollutants. Since neither the WPCP nor the SWPPP for this project have been prepared yet, Section 3.11.5 focuses on anticipated water pollution controls.

The Department was issued a general NPDES permit (Order No. 99-06-DWQ on July 15, 1999) to cover construction activities.

The Statewide Stormwater Management Plan (SWMP) indicates how the Department will comply with the NPDES permit. The statewide SWMP addresses the primary program elements of all the Department's activities, including:

- The project delivery stormwater management program, which includes the design stormwater management program and the construction storm water management program;
- The maintenance storm water management program; and
- The training and public education program.

The Statewide SWMP also addresses assignment of responsibilities for implementing stormwater management practices as well as monitoring program, evaluation and reporting activities (Caltrans, 2002c).

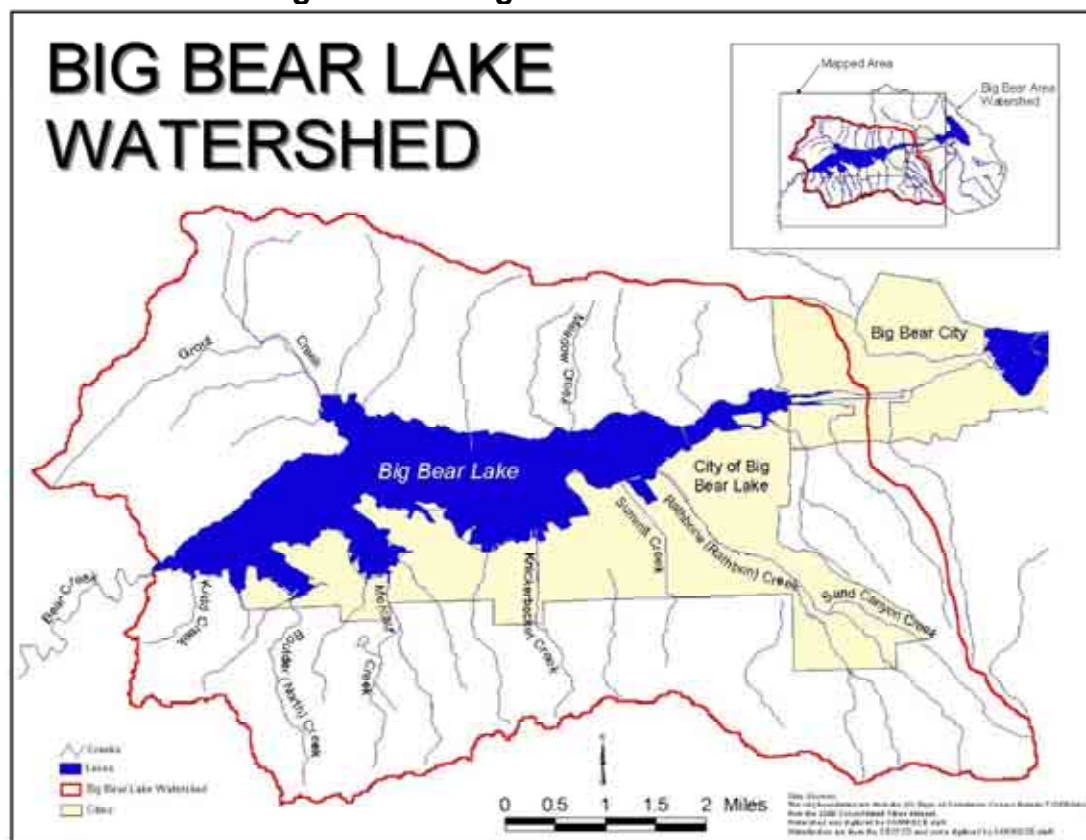
### **3.11.2 Affected Environment**

The proposed project is located within the jurisdiction of the Santa Ana Regional Water Quality Control Board (SARWQCB) and is governed by the Santa Ana Basin Plan. The SARWQCB adopted the Santa Ana Basin Water Quality Control Plan (Basin Plan) for the Santa Ana Region on March 11, 1994 and was most recently amended in 2000. This plan defines existing and potential beneficial water uses and water quality objectives for groundwater, surface waters, and hydrographic areas.

The project is within the mountainous headwaters of the Santa Ana River Basin (Basin). The Basin drains over 4,400 square kilometers (1,700 square miles) within San Bernardino, Riverside, and Orange Counties. Bear Creek and Big Bear Lake are the only major surface water bodies adjacent to the project area. Bear Creek drainage is one of the major headwater tributaries of the Santa Ana River. Damming of the creek in 1884 created Big Bear Lake and it is now the second largest reservoir in the Basin. The Lake's storage capacity is 90 million cubic meters (73,000 acre-feet) and is used for irrigation as well as recreation purposes (BBMWD, 2003).

The Big Bear Lake drainage basin consists of approximately 100 square kilometers (40 square miles) within the San Bernardino Mountains. Big Bear Lake itself is approximately 1,200 hectares (2,900 acres). Twelve percent of Big Bear Lake's drainage basin consists of the lake itself. Local stream runoff and seasonal precipitation are the sole water supplies to the lake. The major inflows to the lake include: Rathbone (Rathbun), Knickerbocker, Summit, Meadow and Grout creeks (see Figure 3-30: Big Bear Lake Watershed). Annual precipitation averages from 334 to 965 millimeters (12 to 38 inches) at the east and west ends of the lake, respectively (SARWQCB, 2002).

**Figure 3-30: Big Bear Lake Watershed**



Source SARWQCB, 2002

Beneficial uses for the streams, lakes and springs within the project vicinity include municipal supply, agricultural, recreational, warm and cold freshwater habitat, spawning, power generation, groundwater recharge and wildlife and threatened and endangered species habitat (SARWQCB, 1995).

In 1994, the RWQCB listed Big Bear Lake on the Clean Water Act Section 303(d) list of impaired water bodies. Additionally, Grout Creek, Knickerbocker Creek,



Rathbone Creek and Summit Creek were also placed on the 303(d) list. Reasons for listing these surface waters are provided in Table 3-11 below. None of the listed creeks would be affected by either of the two proposed build alternatives.

SARWQCB initiated development of Total Maximum Daily Loads (TMDL) for water bodies in the Big Bear Lake watershed as required under section 303(d) of the Clean Water Act. A TMDL task force, led by the BBMWD and including a number of local agencies and private interest groups, was created to aid the RWQCB with TMDL development. The TMDL taskforce, in cooperation with the SARWQCB, will develop and execute the appropriate studies to support the TMDL development. Subsequent to development, TMDLs are subject to approval by United States Environmental Protection Agency (EPA) prior to implementation (SARWQCB, 2002).

**Table 3-11: 303(d) Listed Water Bodies**

Water Body	Pollutant/Stressor	Potential Sources	TMDL Priority	Estimated Size Affected
<b>Big Bear Lake</b>	Copper	Resource Extraction	Medium	1,156 hectares (2,856 acres)
	Mercury			
	Metals			
	Noxious Aquatic Plants	Construction/Land Development Unknown Point Source	High	1,156 hectares (2,856 acres)
	Nutrients	Construction/Land Development Snow Skiing Activities	High	1,156 hectares (2,856 acres)
	Sedimentation/ Siltation	Construction/Land Development Snow Skiing Activities	High	1,156 hectares (2,856 acres)
<b>Knickerbocker Creek</b>	Metals	Unknown Nonpoint Source	Medium	3.2 kilometers (2 miles)
	Pathogens	Unknown Nonpoint Source	High	3.2 kilometers (2 miles)
<b>Summit Creek</b>	Nutrients	Construction	High	2.4 kilometers (1.5 miles)
<b>Grout Creek</b>	Metals	Unknown Nonpoint Source	Medium	5.6 kilometers (3.5 miles)
	Pathogens	Unknown Nonpoint Source	High	5.6 kilometers (3.5 miles)
<b>Rathbone Creek</b>	Nutrients	Snow Skiing Activities Unknown Nonpoint Source	High	7.6 kilometers (4.7 miles)
	Sedimentation/ Siltation	Snow Skiing Activities Unknown Nonpoint Source	High	7.6 kilometers (4.7 miles)

Source SARWQCB, 2003

Tentatively, the RQWCB plans to recommend Big Bear Lake be delisted as being impaired by metals. Fish tissue, sediment and water samples collected from within the lake were below health advisory standards (SARWQCB, 2002).

The construction, operation and maintenance of transportation facilities have the potential to degrade stormwater quality. Stormwater runoff from transportation facilities is well characterized and could contain any combination of typical highway runoff contaminants contained in Table 3-12.

**Table 3-12: Typical Highway Runoff Constituents**

<b>Common Highway Runoff Constituents</b>	
<b>Constituent</b>	<b>Source</b>
<b>Particulates</b>	Pavement wear, vehicles, atmosphere, maintenance
<b>Nutrients</b>	Atmosphere, roadside fertilizer application
<b>Lead</b>	Leaded gasoline (exhaust), tire wear (filler material), lubricating oil , grease and bearing wear
<b>Zinc</b>	Tire wear (filler material), motor oil (stabilizing additive), grease
<b>Iron</b>	Auto body rust, steel highway structures, moving engine parts
<b>Copper</b>	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicides and insecticides (maintenance)
<b>Cadmium</b>	Tire wear (filler material), insecticide application
<b>Chromium</b>	Metal plating, moving engine parts, brake lining
<b>Nickel</b>	Diesel fuel and gasoline (exhaust), lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
<b>Manganese</b>	Moving engine parts
<b>Sulfate</b>	Roadway beds, fuel
<b>PCBs, Pesticides, Organics</b>	Spraying of highway rights-of-way, combustion products, pavement wear, atmosphere, spill
<b>Bacteria</b>	Soil, litter, birds, trucks hauling livestock
<b>Rubber</b>	Tire wear
<b>Petroleum</b>	Spills, leaks or blow-by of motor lubricants, antifreeze, hydraulic fluid, asphalt surface leachate

Source: Caltrans, 2002d

### **3.11.3 Permanent Impacts**

#### **No Action/No Build**

This alternative would have no permanent beneficial or adverse impacts on water quality or stormwater runoff.

#### **Alternatives 4 and 5**

Due to the increase in impermeable surfaces associated with the proposed project there would be a permanent increase in stormwater runoff; however, there are three detention basins proposed for each alternative. With the inclusion of these treatment BMPs, there would be a permanent beneficial impact in overall quality of stormwater runoff entering Big Bear Lake and Bear Creek (See Section 3.11.5).

### **3.11.4 Temporary Impacts**

#### **No Action/No Build**

This alternative would have no temporary beneficial or adverse impacts on water quality or stormwater runoff.

#### **Alternatives 4 and 5**

Temporary potentially adverse impacts on water quality could occur if the project results in a substantial increase in pollutant loading or stressors in the receiving waters. Adverse impacts are those that would cause or contribute to an impairment of a designated beneficial use. The Water Quality Report prepared by the Department analyzes both potential short-term (during construction) and long-term (during operation and maintenance) water quality impacts. Based on the Department's definition of the water quality threshold, the following types of potentially adverse impacts were identified: 1.) introduction of oils, greases and chemical contamination into receiving waters and 2.) increased sediment loading. Potential impacts are discussed below.

**Sedimentation, turbidity and floating material:** Suspended material in stormwater runoff is considered a pollutant of primary importance by the Department for all projects. Erosion is the primary source of suspended material. Project construction activities would result in soil and ground disturbance for both of the build alternatives. These disturbances would expose soil to erosive elements (wind, water, etc.). If the construction site is not properly maintained, sediment could be carried

away by surface water runoff or wind into receiving waters. Associated increases in turbidity could adversely affect water quality if proper protection measures are not enforced. To minimize any occurrence of increased sediment loading, the Department would include construction BMPs within the engineering plans, as well as, require the contractor to prepare and implement a SWPPP.

The Department's current standard specifications have prescriptive requirements for erosion and sediment controls specific to different topographic and climatic regions within the State. Examples include temporary soil stabilization during the winter season on inactive slopes and temporary linear sediment barriers and temporary detention/retention basins on active slopes. BMPs would provide a high degree of protection to the local receiving waters from discharge of sediment during construction (see Section 3.11.5).

**Oil, greases and chemical contamination:** Construction activities associated with the build alternatives have the potential to introduce oils, greases, and other chemicals that could be carried by surface runoff into receiving waters if not properly managed during construction activities. BMPs for these types of impacts are generally addressed through "good housekeeping practices." For example, these BMPs prohibit the contractor from discharging oils, greases or chemicals into receiving waters and require all equipment operating in water bodies be steam cleaned prior to arrival on the construction site. The equipment would then be maintained in clean condition for the duration of construction. Such BMPs would provide a high degree of protection to the local receiving waters from discharge of oil, greases, and other chemical contamination during construction. Through the use of "good housekeeping practices," no net increase of contaminants in surface waters and/or soil are expected, and the proposed project would not further degrade the water quality within the project site or down stream (see Section 3.11.5).

### **3.11.5 Avoidance, Minimization and Compensation Measures**

To avoid and/or minimize impacts from potential erosion, sedimentation, and introduced pollutants, both temporary (during construction) and permanent (operation and maintenance) water quality BMPs would be implemented.

### Permanent /Treatment BMPs

Permanent treatments BMPs are required to be considered for all new construction and major reconstruction projects that do not have exempt status. The proposed project is defined as a significant reconstruction project and is not classified as an emergency project; therefore, it does not meet the exemption criteria and treatment BMPs must be considered. There are currently six treatment BMPs approved for statewide use including biofiltration swales/strips, infiltration basins, detention basins, traction sand traps, dry weather flow diversions and gross solids removal devices.

Three detention basins are proposed for both Alternatives 4 and 5 (see Tables 3-13, & 3-14, Figures 3-31 & 3-32 for proposed detention basins sizes and locations).

### Temporary Construction BMPs

Temporary construction site BMPs are applied during construction activities to reduce pollutants in stormwater discharges throughout construction. These BMPs provide both temporary erosion and sediment control. There are six categories of construction site BMPs suitable for erosion and sediment control. Construction site BMPs will be incorporated into the project's Plans, Specifications, and Estimates (PS&E) and may include the following:

#### Soil Stabilization

Hydroseeding of steeper cut slopes  
Straw placement on fill slopes  
Erosion control blankets

#### Tracking Control

Street sweeping/vacuuming  
Entrance/outlet tire wash

#### Sediment Control

Silt fencing  
Sandbag barriers  
Fiber rolls  
Sediment traps/basins

#### Wind Erosion Control

Application of water for dust  
Sandbag/covering/spraying stockpiles

#### Non-Storm Water Controls

Water conservation practices  
Dewatering operation  
Minimize/eliminate fuel spills/leaks

#### Waste Management and Material

Proper handling/storage of materials  
Stockpile management  
Spill prevention and control

Prior to beginning construction activities, the contractor will be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), in compliance with the Department's NPDES Stormwater Permit. The SWPPP will describe the specific



construction site BMPs to be included in this project. The Department will approve the SWPPP prior to commencement of soil-disturbing activities.

### **Additional Measures**

These measures would include but are not necessarily limited to the following:

- Any “in-water” work activities would comply with standards in the Santa Ana Water Quality Control and Basin Plan. The contractor’s work will comply with the water pollution protection provisions of Section 7-1.01G of Department’s Standard Specifications, as well as with conditions contained within regulatory permits;
- Prior to blasting/excavating for the bridge and wall footings, temporary erosion control fencing would be placed down slope of areas where disturbance of native soil is anticipated. This temporary fence would be maintained in functional condition until soil disturbance activities are completed and permanent erosion control measures are in place;
- Disturbed slopes would receive temporary erosion control measures throughout construction and at the end of each work season. Permanent erosion control would be installed at the completion of the project. Permanent erosion control measures would also consist of revegetation and filter fabric, where appropriate, for all disturbed areas. Contract specifications would require the use of California shrubs, forbs and grass species that could be collected within the project vicinity. Any mulch would be from source materials that would not introduce exotic species. Revegetation would generally be completed in accordance with the conceptual revegetation plan in Appendix E. The Department’s Landscape Architecture and Environmental branches in consultation with USFS, CDFG and the USFWS would develop a detailed revegetation plan subsequent to identification of the preferred alternative and prior to beginning construction.
- Highway runoff will be prevented from flowing directly into surface water-bodies. The Department will require detention basins for either Alternative 4 or 5. The basins are designed to hold stormwater runoff for 48-hours to allow solids (dirt, organics, etc.) to settle out. Either alternative would incorporate three detention basins designed for the 85<sup>th</sup> percentile of 24-hour historical storm data.

## Alternative 4

The proposed locations for the detention basins are shown in Figure 3-31. Basin 1 would be located east of the SR-18/38 intersection. Basin 2 would be located west of the existing SR-18/38 intersection. Basin 3 would be located on the lake's south shore near the southern end of the existing bridge. The proposed dimensions and geometry of the basins for Alternative 4 are listed below in Table 3-13.

**Table 3-13: Dimension and Size of Alternative 4 Detention Basins**

Basin #	Geometry	Dimensions (m/ft)	Volume(m <sup>3</sup> /ft <sup>3</sup> )
1	Quadrilateral	45 x 3.75(average) x 1.2/ 148 x 12.3 x 4	202 / 7,134
2	Ellipsoid	25 x 2(average) x 1 / 82 x 6.6 x 3.3	50 / 1,766
3	Rhomboid	20 x 5 x 1 / 65.6 x 16.4 x 3.3	100 / 3,531

Source: Caltrans, 2002d

## Alternative 5

The locations of the detention basins proposed for Alternative 5 are shown in Figure 3-32. Basins 1 and 2 are parallel to each other and are located just west of the proposed SR-18/38 intersection near the shoulders. Basin 3 is located on the lake's south shore just east of the existing bridge. The proposed dimensions of the three basins are listed below in Table 3-14.

**Table 3-14: Dimension and Size of Alternative 5 Detention Basins**

Basin #	Geometry	Dimensions (m/ft)	Volume(m <sup>3</sup> /ft <sup>3</sup> )
1	Rectangular	80 x 1.6 x 1 / 262.5 x 5.2 x 3.3	128 / 4520
2	Rectangular	80 x 1.6 x 1 / 262.5 x 5.2 x 3.3	128 / 4520
3	Rhomboid	20 x 6 x 1 / 65.6 x 19.7 x 3.3	120 / 4238

Source: Caltrans, 2002d

Figure 3-31: Proposed Detention Basins for Alternative 4

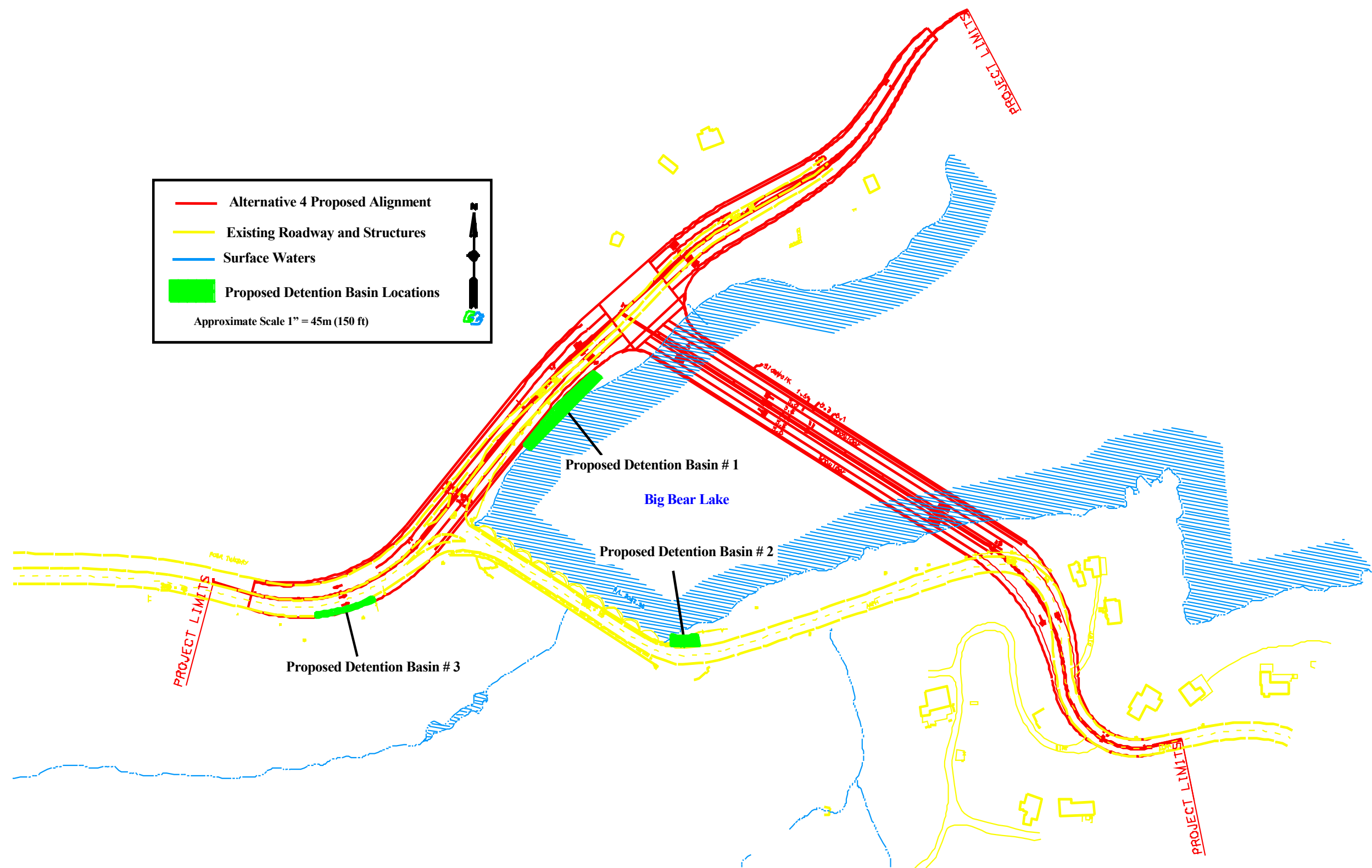
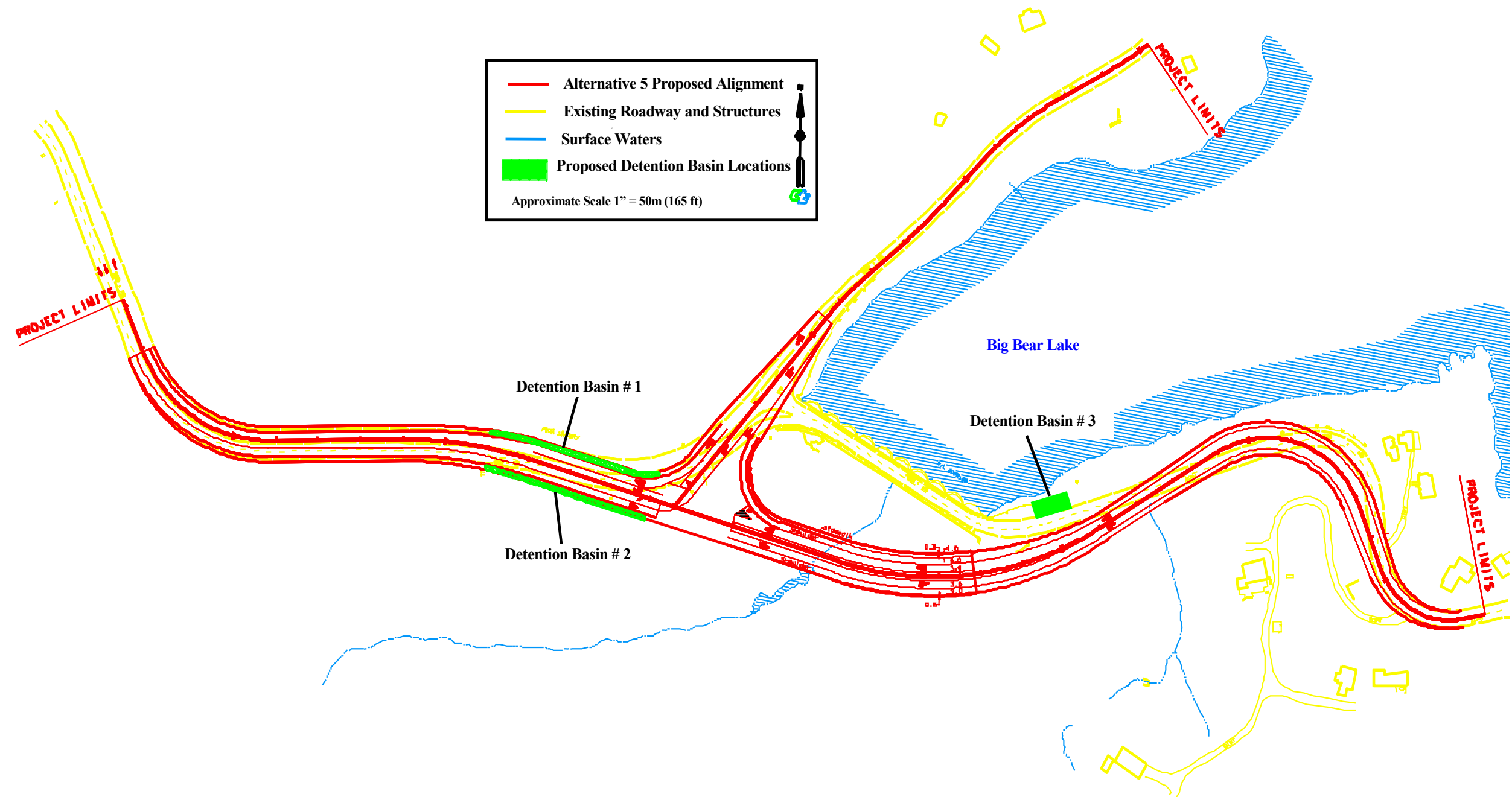


Figure 3-32: Proposed Detention Basins for Alternative 5



- A SWPPP will be developed by the contractor for the proposed project and submitted to the Department and RWQCB for approval. This plan will describe how the contractor would comply with the requirements of the general construction NPDES permit, as well as any additional requirements needed to protect Bear Creek and Big Bear Lake. Total Maximum Daily Loads (TMDL) are currently being developed by the RWQCB for Big Bear watershed and are scheduled to be completed in 2005. TMDLs are the maximum amounts of specific materials that are allowed to enter an impaired body of water per day. Total Maximum Daily Loads are required for all bodies of water that are on the State Water Quality Control Board's 303(d) list of impaired waters. Any additional requirements that arise subsequent to the development of these TMDLs would be addressed in the FEIS/R.

With inclusion of the mitigation measures above, as well as compliance with regulatory and permitting requirements, there would be no adverse water quality impacts as a result of either of the proposed build alternatives for this project.

## **3.12 Geology and Soils**

### **3.12.1 Regulatory Setting**

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department's Office of Earthquake Engineering is responsible for assessing the seismic hazards for Department projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE) from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

### **3.12.2 Affected Environment**

The study area is located in the Big Bear Valley adjacent to the steep mountainous slopes of the San Bernardino Mountains where slopes vary from 0.5:1 to 1:1 (50 to 100 percent). Land surface areas range from a height of approximately 2,120 meters



(6,950 feet) above mean sea level (msl) in the southeastern areas to 2,020 meters (6,620 feet) above msl along Bear Creek in the southwest portion of the project. The project areas are adjacent to Big Bear Lake, which is characterized by steep and near vertical mountains with numerous large rock outcroppings as well as the narrow and sharply “V” cut Bear Creek Canyon.

The proposed project is located in the north block of the San Bernardino Mountains. In general, the north block of the San Bernardino Mountains is composed of Mesozoic granitic and Paleozoic metasedimentary rocks overlain by Cenozoic valley deposits and basalt. This rock assemblage presently forms a broad plateau that was tectonically elevated to a height of about 3,500 meters (11,500 feet) above msl and then tilted northward during the Cenozoic Era. Rapid headway erosion during the Holocene Epoch, by active streams such as Bear Creek, has created a contrasting topography of steep-sided narrow canyons and valleys impinging on the erosional surface of Big Bear Valley (Caltrans, 1991).

The project area is underlain by granitic rocks composed primarily of quartz monzonite overlain by three surface soil units. Below are descriptions of the soil and rock units (Caltrans, 1991). An approximate map of these soil units is provided in Figure 3-33.

- Artificial Fill: man-made fill deposits consisting of locally derived sand, gravel, cobbles, and large boulders associated with the construction of SR-18 and SR-38 and the Bear Valley Dam and its subsequent infilling;
- Talus Deposits: an accumulation of debris as well as slope wash and residual soils cover large portions of the existing slopes and the canyon floor downstream from the dam. These materials vary from fine silt to coarse boulder sized material. These materials are generally derived from quartz monzonite bedrock;
- Alluvium: surficial distribution of alluvium typically conforms to the Bear Creek drainage and several additional steep tributaries that originate from the north facing slopes above the dam and SR-18. This material generally appears as a thin veneer of silty-sand to silty-gravel overlaying the moderately weathered bedrock; and

- Granitic Rock: granitic bedrock is well exposed throughout the project area and consists of slightly foliated, massive and jointed quartz monzonite. This unit varies from slightly to very fractured and moderately to very weathered granite near its surface. The southerly facing cut slope above the existing dam has experienced cyclic freezing and thawing which has mechanically weathered the quartz monzonite bedrock. In these areas, weathering has altered some of the minerals into clays producing an irregular slope.

There would be no mineral exploitation associated with the proposed project. Although exploitation of the bedrock unit for dimension stone has occurred in the project vicinity, the proposed project is not located in a designated mineral resource zone.

The north block of the San Bernardino Mountains is located within the seismically active southern California region of the uplift physiographic unit of the transverse range's tectonic province. This mountain range is bounded on the south by the north branch of the San Andreas Fault zone and the Pinto Mountain Fault, and on the north by a series of southerly dipping thrust faults that form the base of the San Bernardino Mountains and the southern extent of the Mojave Desert Plain. Earth movements along the San Andreas and associated lateral and thrust faults have a long history within the proposed project area.

Regional quaternary faults considered to have the potential to impact the project area are listed in the Table 3-15 below.

**Table 3-15: Estimated Site Motion Parameters For Important Regional Faults**

Fault Name	Site Distance (km/mi) <sup>3</sup>	Maximum Credible Earthquake <sup>1</sup>			Maximum Probable Earthquake <sup>2</sup>		
		Magnitude <sup>4</sup>	Peak Accl. (g) <sup>5</sup>	Bracketed Duration (Sec) <sup>6</sup>	Magnitude	Peak Accl. (g)	Bracketed Duration (Sec)
Bear Creek	<1	6.0	0.61	10-15	5.0	0.30	5
Santa Ana	6.5/4	6.5	0.50	15-20	5.5	0.33	5-10
Helendale	16/10	7.5	0.41	30-40	5.5	0.17	5-10
San Andreas							
N. Branch	14.5/9	7.5	0.42	30-40	7.5	0.42	30-40
S. Branch	19/12	8.0	0.42	35-50	8.0	0.42	35-50

1. The largest possible earthquake that could reasonably occur along the recognized faults or within a particular seismic source.

2. The largest earthquake likely to occur in 100 years, but not less than the largest historic earthquake.

3. The approximate distance from the project area to the fault.

4. The relative size of an earthquake, based on the maximum motion of the ground as recorded by a seismograph and commonly referred to as the earthquakes Richter Magnitude.

5. The Peak rate of change of velocity of a reference point. Commonly expressed as a fraction or percentage of the acceleration due to gravity (g) where g = 980 cm/s<sup>2</sup>.

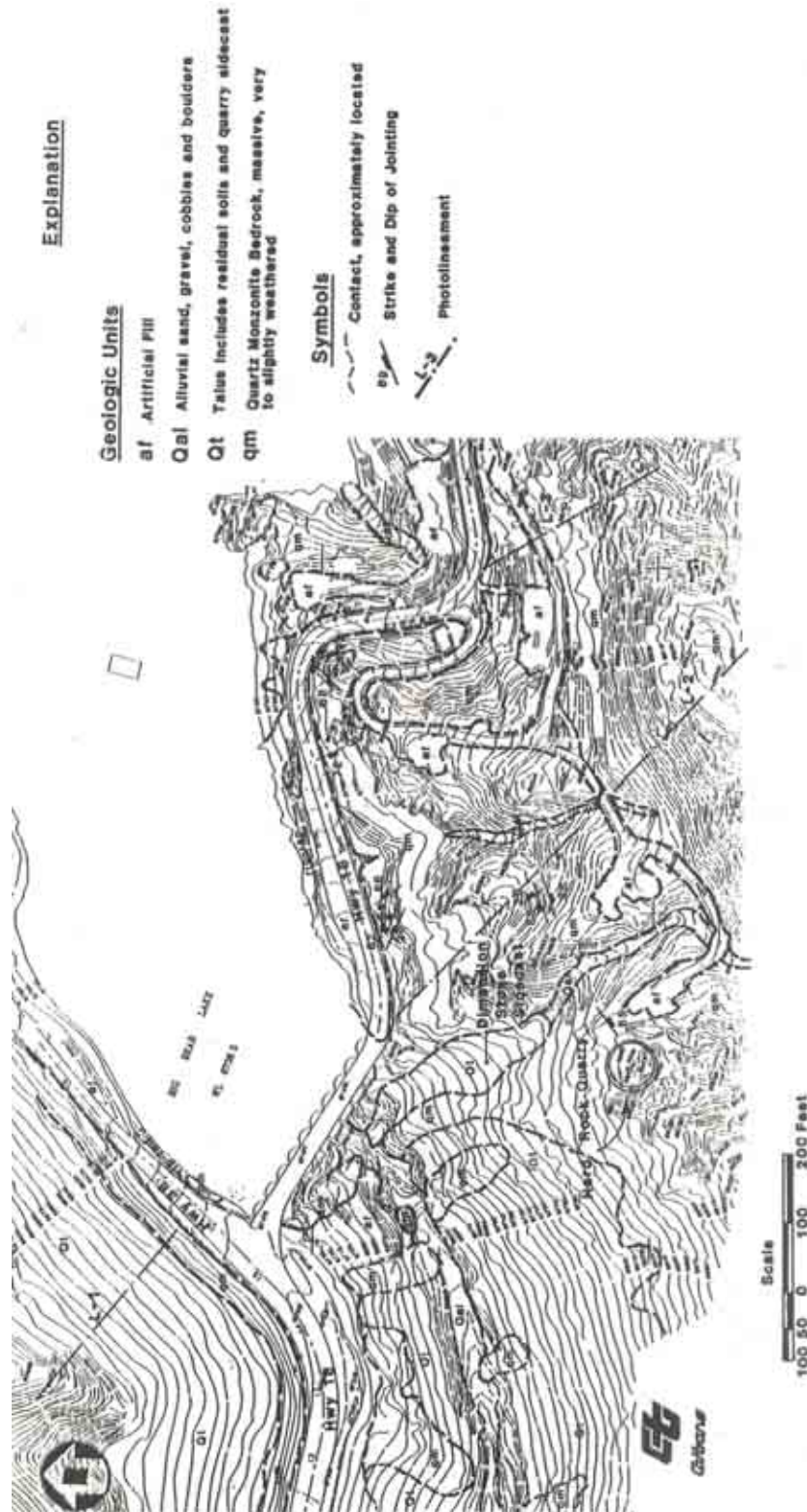
6. Bracketed duration is the lapsed time between the first and last acceleration greater than a given level (0.05 g and 0.10 g).

Maximum credible and maximum probable earthquake magnitudes based on Greensfelder (1974), CDMG Note 43 (1975a).

Maximum rock acceleration based on Seed and Idriss (1982).

Bracketed duration of strong ground shaking exceeding 0.05g from Bolt et al (1975).

Figure 3-33: Geologic Unit Map



As presented in Table 3-15, the Bear Creek fault is the nearest potentially active fault to the project area. This fault is an interior thrust fault restricted wholly within the San Bernardino mountains. The maximum length of the Bear Creek fault is estimated to be 35 kilometers (22 miles), extending from Fawnskin in the east, and continuing westerly beyond the west fork of City Creek. Its curvilinear surface trace strikes in the northeast to east direction and dips between 15 and 50 degrees to the north. The approximate location of the Bear Creek fault is 1.6 kilometers (1 mile) north of the proposed bridge sites (Caltrans, 1991).

The regional faults indicated in Table 3-15 are believed to be capable of producing maximum credible earthquakes in the range of Richter Magnitudes (M) of 6.0 to 8.0; however, the San Andreas fault is commonly reported as capable of producing earthquakes with 8.0+ M. Notable recent earthquakes near Big Bear Lake include: 5.4 M on February 22, 2003 (5.0 kilometers [3.1 miles] north of Big Bear City), 5.1 M on February 10, 2001 (6.1 kilometers [3.8 miles] north-northwest of the city of Big Bear Lake) and 7.3 M June 28, 1992 (approximately 48 kilometers [30 miles] west of Big Bear Lake) (USGS, 2003).

### **3.12.2.1 Construction Vibration**

Operation of construction equipment and construction techniques such as blasting can generate ground-borne vibration. Vibration can cause structural damage and/or be an annoyance to individuals who live or work close to the source of the vibrations. The potential for structural damage is based on the intensity of the vibration at the foundation of the structure (measured in inches per second [in/sec]). The potential for annoyance to humans is measured at the location of the person (also measured in in/sec or equivalent).

Vibrations are classified into two categories. Continuous vibrations occur over longer periods of time at lower intensities. Transient vibrations occur over shorter periods of time but at much greater intensity. Examples of construction activities/equipment associated with continuous vibration include: excavation and excavation equipment, static compaction equipment, tracked vehicles, traffic on a highway, vibratory pile drivers, pile-extraction equipment and vibratory compaction equipment. Examples of construction activities/equipment associated with transient vibration include: impact pile drivers, blasting, drop balls, “pogo stick” compactors, and crack and seal equipment.



Annoyance and architectural damage thresholds have been the subject of various studies. The threshold categories and their impact ranges are provided in Tables 3-16, 3-17 and 3-18 (Jones & Stokes, 2003).

**Table 3-16: Maximum Vibration Levels for Preventing Damage**

Structure & Condition	Maximum (idsec)	
	Transient Sources	Continuous Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.25
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	1.0

Source: Jones & Stokes, 2003

**Table 3-17: Annoyance Vibration Impact Criteria**

Human Response	Maximum (idsec)	
	Transient Sources	Continuous Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: Jones & Stokes, 2003

**Table 3-18: Human Response To Blasting**

Human Response	idsec (In/sec)	Decibels
Barely to distinctly perceptible	0.02-0.10	50-70
Distinctly to strongly perceptible	0.10-0.50	70-90
Strongly perceptible to mildly unpleasant	0.50-1.00	90-120
Mildly to distinctly unpleasant	1.00-2.00	120-140
Distinctly unpleasant to intolerable	2.00-10.00	140-170

Source: Jones & Stokes, 2003

### **3.12.3 Permanent Impacts**

Permanent impacts associated with Alternatives 4 and 5 would occur during removal of soils during construction related activities such as grading, leveling, and construction of the new roadway and bridge.

#### **No Action/No Build**

There are no construction activities associated with this alternative and no impacts to soils and geology. The Department would continue with scheduled maintenance, as appropriate. There is no guarantee that in the event of a maximum credible seismic event the integrity of the structure would remain intact. When rehabilitation of the existing bridge can no longer ensure the safety of the traveling public its use would be prohibited.

#### **Alternatives 4 and 5**

Both of the build alternatives (Alternatives 4 and 5) are subject to cyclical freeze and thaw degradation, sloughing, and erosion near surface bedrock materials. These conditions should be anticipated during winter months and would be accounted for during selection of water quality BMPs

Excavation for either of the build alternatives would likely require controlled blasting. Blasting plans would be reviewed by the Department and any blasting would be done in a manner that would not jeopardize the integrity of the dam or cultural resources and would minimize harm to biological resources. All blasting would be planned and executed by a certified and experienced blasting engineer. If it is determined blasting would not be acceptable, a chemical expansive material or other means would be used to excavate material during construction.

#### **Alternative 4**

Alternative 4 would require excavation of approximately 3,060 cubic meters (4,000 cubic yards) of soil and rock. Approximately 1,950 cubic meters (2,550 cubic yards) would be used as fill during construction of the proposed bridge. Additionally, approximately 250 cubic meters (330 cubic yards) of dredge (removal of sediment and rock) and fill (concrete) would be associated with each of the two bridge pier locations within Big Bear Lake. Preliminary engineering indicates that at the east bridge approach a cut slope up to 11 meters (36 feet) high, and fills of up to 1.8 meters (6 feet) deep behind the bridge abutments would be required. Fill material

would likely be acquired from the excavations associated with this project. The bridge abutments would be located in existing areas of loose talus material that will be replaced by artificial fill. The engineering characteristics and final excavation and stabilization requirements of these areas would be determined during final design. The structure proposed for this alternative would be designed and built to withstand maximum credible seismic events (Caltrans, 2003a).

Any excess material generated from the proposed project is the property of USFS and could be stored and/or disposed of at locations approved by the USFS. Preliminary discussions with the USFS indicated the excess material could be crushed and distributed on USFS roads. Any roads identified by the USFS as locations for rock disposal would be approved by the USFS, analyzed within the FEIS/R and detailed in a written agreement with the USFS prior to construction.

### **Alternative 5**

Alternative 5 would require excavation of approximately 11,470 cubic meters (15,000 cubic yards) of soil and rock. Approximately 4,260 cubic meters (5,580 cubic yards) would be used as fill during the construction of the proposed bridge. Preliminary engineering indicates the cut slope at the east bridge approach would be up to 9.75 meters (32 feet) high, and the fills would be up to 1.8 meters (6 feet) deep behind the bridge abutments. Fill material will likely be acquired from the excavations associated with this project. The bridge abutments would be located in loose talus material. The engineering characteristics and final excavation and stabilization requirements of these areas would be determined during final design. The structure proposed for this alternative would be designed and built to withstand maximum credible seismic events (Caltrans, 200a).

Any excess material generated from the proposed project is the property of USFS and could be stored and/or disposed of at locations approved by the USFS. Preliminary discussions with the USFS indicated that the excess material could be crushed and distributed on USFS roads. Any roads identified by the USFS as locations for rock disposal would be approved by the USFS, analyzed within the FEIS/R and detailed in a written agreement with the USFS prior to construction.

### **3.12.4 Temporary Impacts**

#### **No Action/No Build and Alternatives 4 and 5**

There are no temporary impacts to soils and geology. All impacts to soils and geology are considered permanent impacts.

#### **3.12.4.1 Construction Vibration Impacts**

##### Construction Equipment

The Department has been conducting vibration studies since 1956. With the exception of a few instances involving pavement breaking and pile driving, all construction vibration measurements have been below 0.20 idsec at 7.5 meters (25 feet) from the source of the vibration. Typical construction activities and equipment, such as D-8 and D-9 Caterpillars, earthmovers and haul trucks, have never exceeded 0.10 idsec at 3 meters (10 feet) (Jones and Stokes, 2003). Impacts on structural stability as a result of vibration associated with construction of either of the proposed alternatives are not anticipated.

##### Blasting

Although the excavation methods have not yet been determined, the Department anticipates blasting would be the most efficient and least disturbing method for the excavation of the large quantities of rock required for this project. The project is located adjacent to sensitive historic resources and blasting would only be used if it can be determined that the vibration levels associated with blasting would be at or below the architectural damage thresholds. Blasting would be planned and completed by a blasting engineer with experience in blasting within vibration-sensitive areas. Blasting is a controlled technique and impacts associated with the blasting are not anticipated (Jones and Stokes, 2003).

### **3.12.5 Avoidance, Minimization & Compensation Measures**

Excavation of material and modification to natural topography will be minimized to the maximum extent practicable. Where possible, large boulders would be preserved in place. If preservation in place were not possible, temporary relocation of large and/or unique boulders would be required until construction is complete. Excess topsoil and relocated boulders and rocks would be stored for reuse subsequent to construction for slope stabilization and topographic restoration. The irregular and

rocky terrain would be restored to the maximum extent practicable to match what exists prior to construction.

Additionally, if blasting is selected as the rock excavation technique, a detailed crack survey will be completed on both residences and any structures within 60 meters (200 feet) of the construction impact areas before starting construction activities. The survey may consist of photographs, videotape, or a visual inventory of walls, both inside and outside of structures. All existing cracks in walls, floors, driveways, etc. would be documented with sufficient detail for comparison after construction to determine whether actual vibration damage has occurred. Blasting would be completed during normal construction hours and will conform to all noise control special provisions.

### **3.13 Hazardous Waste/Materials**

#### **3.13.1 Regulatory Setting**

Many state and federal laws regulate hazardous materials and hazardous wastes. Federal laws regulating different aspects of hazardous materials/wastes include the following:

- Resource Conservation and Recovery Act of 1976 (RCRA)
- Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)
- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, EO 12088, Federal Compliance with Pollution Control, mandates necessary actions be taken to prevent and control environmental pollution with respect to federal facilities and activities.



State laws regulating different aspects of hazardous materials/wastes include the following:

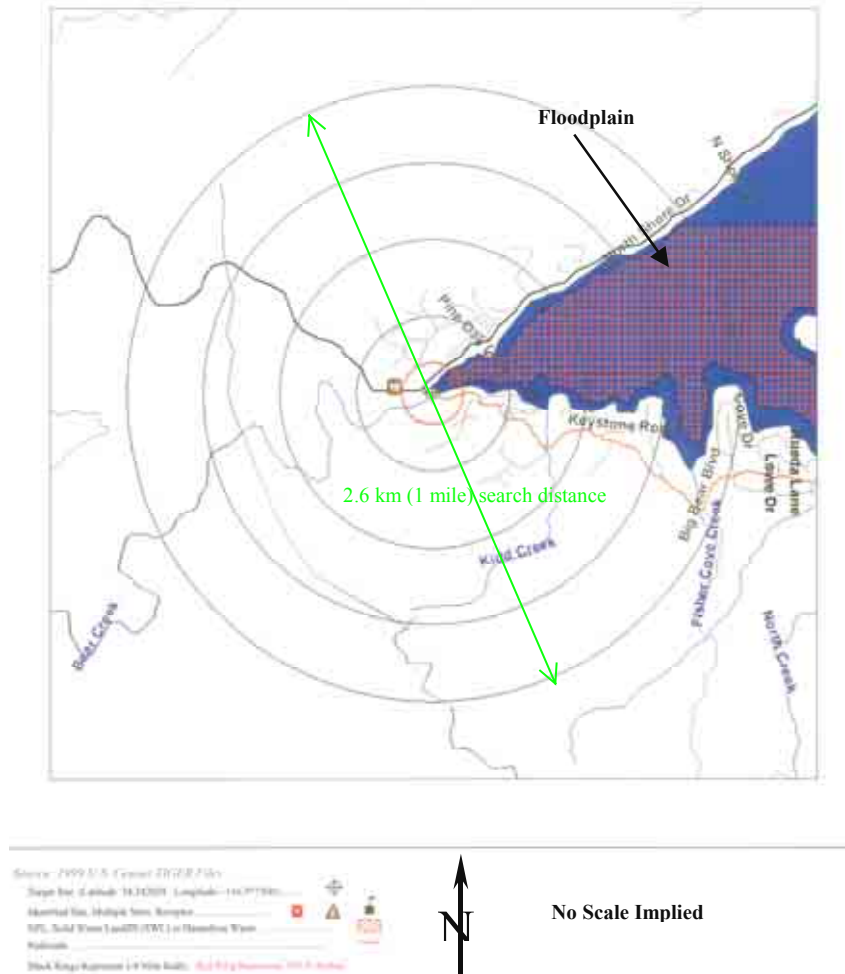
- California Hazardous Waste Control Law (HWCL) of 1972
- Hazardous Waste Haulers Act of 1979
- Underground Storage of Hazardous Substances Law of 1982
- Toxic Pits Cleanup Law of 1984
- Hazardous Waste Reduction, Recycling, and Treatment Research and Demonstration Act of 1985
- Hazardous Waste Management Plans Act of 1986
- Carpenter-Presley-Tanner Hazardous Substance Account Act of 1981

State or county environmental health agencies typically regulate waste storage facilities. Worker health and safety and public safety are key issues when dealing with hazardous materials. Proper disposal of hazardous material is mandatory if it is discovered during project construction.

### **3.13.2 Affected Environment**

An Environmental First Search Report, a review of governmental hazardous waste databases and files (CERCLA, the National Priority List, Hazardous Waste and Substances Site List, Bond Expenditure Plan, and SARWQCB Leaking Underground Storage Tank List, etc.), was completed in accordance with the American Society for Testing and Materials standards. No evidence was found to indicate any historic use that would result in hazardous waste contamination within 1.3 kilometers (1 mile) of the project area (see Figure 3-34).

**Figure 3-34: Hazardous Waste Search Area and Sites (all databases)**



An Initial Site Assessment (ISA) checklist for screening and assessment of projects for potential hazardous waste was completed on April 22, 1991, and updated on May 21, 1993 and July 17, 2002. All ISAs concluded there are no impacts from historic or existing hazardous waste associated with either of the proposed build alternatives. A copy of the July 17, 2002 ISA checklist is provided in Appendix I.

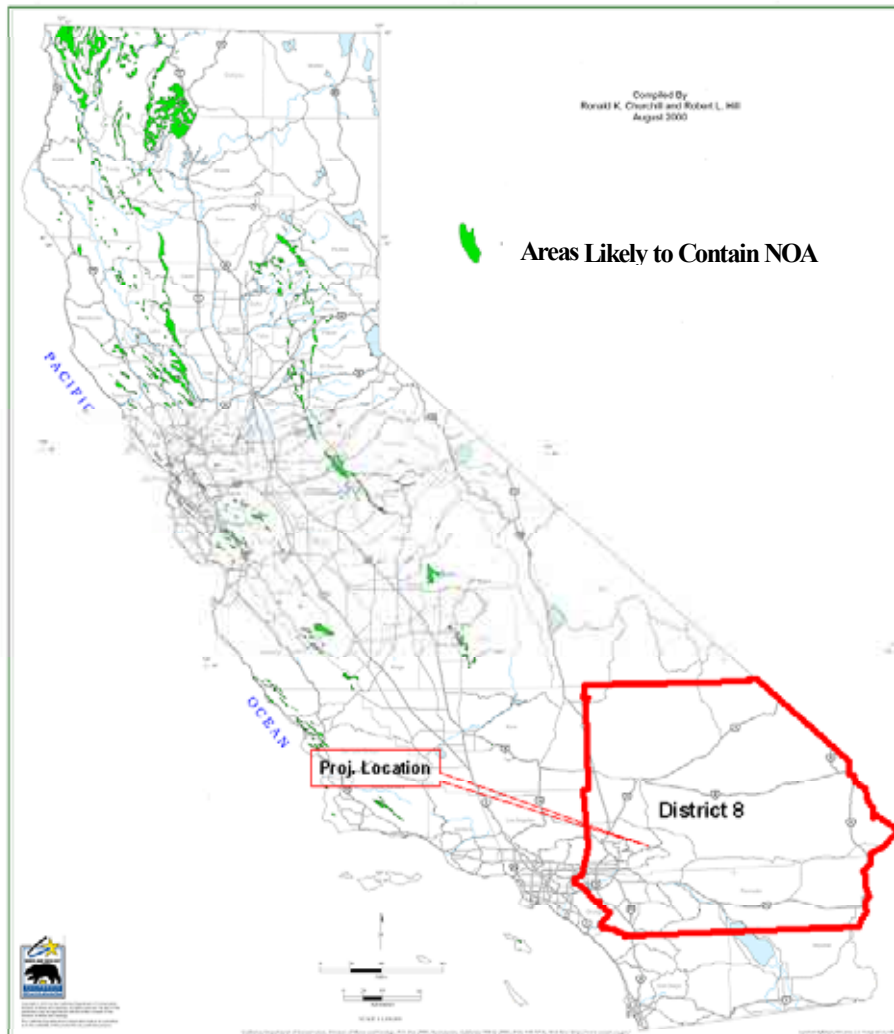
Discovery of unknown materials during construction would require work to stop and the Resident Engineer to notify the Department's hazardous waste section, headquarters construction branch, and hazardous waste management branch. Upon discovery, Caltrans would work with the appropriate agencies to develop a plan to investigate the site and determine corrective remediation measures.

**Aerial Deposited Lead (ADL):** The Department has made the determination that based on nearby sampling, annual precipitation, topography and daily traffic levels, ADL above background levels is not expected within the project limits.

Lead Based Paint: The existing bridge is a concrete structure and has never been painted. Due to the historical absence of paint on the structure there are no lead based paint concerns regarding the proposed demolition and disposal of the existing structure.

Naturally Occurring Asbestos (NOA): Although NOA is not considered a hazardous waste, NOA is a restricted waste and does occur naturally in California. NOA is found in Ultramafic and Serpentine rocks commonly found in the coast range, Klamath Mountains and Sierra Foothills. The proposed project area is located in San Bernardino County and it is highly unlikely that NOA exists within the proposed project area. The map produced by the Department of Conservation, Division of Mines and Geology (Figure 3-35) indicates that there are no known regions within San Bernardino County likely to contain NOA.

**Figure 3-35: Areas Likely to Contain NOA**



Source: DOC, 2000

Structural Asbestos: An asbestos survey was completed in 2002 on the existing bridge to determine the presence/absence of asbestos containing materials (ACM), as required by the South Coast Air Quality Management District (SCAQMD). The survey was limited to those areas exposed and/or physically accessible to the inspector. All suspect ACM was sampled and analysis of these materials revealed ACM in the black mastic on top of the bridge railings. The quantity of ACM was estimated to be approximately 0.15 cubic meters (5 cubic feet). Since the survey was limited, additional ACM may be present in the structure that was not identified by the survey.

Under SCAQMD Rule 1403, all structure demolitions require notification of the SCAQMD. Failure to notify the SCAQMD may result in issuance of a citation to the Department for regulatory noncompliance. Notification information will be provided to the contractor in the Department's Standard Specifications in Section 7-1.01F Air Pollution Control and Section 7-1.04 Permits and Licenses, as well as Special Provision S5-080-A07-30-00, which provides the details for the removal and handling of asbestos-containing material on the structure prior to demolition in conformance with state, local and federal regulations.

### **3.13.3 Permanent Impacts**

#### **No Action/No Build and Alternatives 4 and 5**

There are no known hazardous waste sites within the project footprint or within 1.3 kilometers (1 mile) of the project area (see Figure 3-34). There would be no permanent impacts to hazardous waste sites associated with the No Action / No Build or with the construction of either Alternative 4 or 5.

### **3.13.4 Temporary Impacts**

#### **No Action/No Build**

There are no known hazardous waste sites within the project footprint or within 1.3 kilometers (1 mile) of the project areas. There would be no temporary impacts to hazardous waste sites associated with the No Action / No Build or with the construction of either Alternative 4 or 5.

## **Alternatives 4 and 5**

Both Alternatives 4 and 5 would require the removal of the existing bridge and disturbance of ACM. When disturbed during demolition of the existing bridge, ACM has the potential to become airborne and could pose a potential human health risk. However, with the measures identified in Section 3.13.5 and as discussed above in Section 3.13.2, any risks to human health would be minimal.

### **3.13.5 Avoidance, Minimization and Compensation Measures**

- 1.) Prior to demolition of the existing bridge or disturbance of ACM, SCAQMD Rule 1403 requires notification of the SCAQMD. Failure to notify the SCAQMD may result in issuance of a citation to the Department for regulatory noncompliance. Notification information and requirements associated with the disturbance of ACM will be provided to the contractor in the Department's Standard Specifications in Section 7-1.01F Air Pollution Control and Section 7-1.04 Permits and Licenses, as well as Special Provision S5-080-A07-30-00 which provides details for removal and handling of ACM on the structure prior to demolition in conformance with state, local and federal regulations.
- 2.) ACM will be removed/controlled by a registered and licensed asbestos contractor prior to any demolition of the existing bridge.
- 3.) All removal and containment activities shall be completed in a wet state, sufficient to prevent the emission of airborne fibers and minimize potential for exposure of employees/people in excess of regulatory exposure limits.

## **3.14 Air Quality**

### **3.14.1 Regulatory Setting**

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. Under these laws, standards are set for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for primary air contaminants associated with on-road transportation sources and include: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>) and particulate matter that is 10 microns in diameter or smaller (PM<sub>10</sub>).



Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity is concerned with how well the region is meeting the standards set for the pollutants listed above. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned regionally, for a period of 20 years, and is updated every 3 years. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would result in a violation of the Clean Air Act. If no violations occur, the regional planning organization (Southern California Association of Governments [SCAG] for San Bernardino, Los Angeles, Orange, Riverside, Ventura and Imperial Counties) and the appropriate federal agencies (such as FHWA) make a determination that the RTP is in conformity with the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, the proposed project is deemed to be in conformity at the regional level.

Project-level conformity is also required. Pollutants of concern are: carbon monoxide (CO) and particulate matter that is 10 microns in diameter or smaller (PM<sub>10</sub>). If a region is meeting the standard for a given pollutant, the region is said to be in “attainment” for that pollutant. If the region is not meeting the standard, it is designated a “non-attainment” area for that pollutant. Areas that were previously designated as non-attainment areas but have recently met the standard are called “maintenance” areas. If a project is located in a non-attainment or maintenance area for a given pollutant, additional air quality analysis and mitigation in regard to that pollutant (most frequently CO and PM<sub>10</sub>) is required.

As required by a court settlement, US EPA issued final non-attainment area designations on April 15, 2004 for the 8-hour ozone standard. Designations and Phase One of the implementation regulations were published in the Federal Register on April 30, 2004, effective June 15, 2004. In July 1997, U.S. EPA established a new federal 8-hour standard for ozone of 0.085 parts per million. U.S. EPA designated fifteen areas in California that violate the federal 8-hour ozone standard on April 15,

2004. Each non-attainment area's classification and attainment deadline is based on the severity of its ozone problem. The proposed project is located in the South Coast Air Basin and was designated severe non-attainment. The South Coast Air Basin has a maximum attainment date of the year 2021.

On July 18, 1997, the EPA revised the NAAQS to add new standards for PM<sub>2.5</sub>. The EPA established annual and 24-hour standards of 15 micrograms/cubic meter and 65 micrograms/cubic meter, respectively. The PM<sub>2.5</sub> NAAQS faced a lengthy legal battle and in March 2002 all legal challenges were complete. From April 2001-2003, EPA collected PM<sub>2.5</sub> air quality data and made preliminary designations in April 2003 and final designations in December 2004. The final designations were published in the Federal Register (Vol. 70 No. 3 on January 5, 2005).

### **3.14.2 Affected Environment**

The project area is located within the South Coast Air Basin (SCAB) and is regulated by the South Coast Air Quality Management District (SCAQMD). SCAB, includes Orange County, Riverside County, San Bernardino County and the non-desert portions of Los Angeles County. The proposed project is included in the 2004 Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP). The proposed project is a bridge replacement and intersection channelization project, which is exempt from regional air quality analysis per 40 CFR part 93. The RTP and RTIP were adopted by the SCAG on April 1, 2004, and September 10, 2004, as Resolution #04-451-2. The FHWA approved the 2004 RTP and RTIP on June 7, 2004, and October 4, 2004, respectively. The proposed project can be found within the Exempt Lump Sum projects in SCAG's 2004 RTP (Appendix I, page I-137) and also within SCAG's 2004 RTIP within the Exempt Lump Sum in San Bernardino County's State Highways (page 38). Copies of these pages from the 2004 RTP and RTIP are provided in Appendix J.

Both of the build alternatives, as describe within this document, still meet the exempt status criteria, per 40 CFR part 93, and will not delay timely implementation of the Transportation Control Measures (TCMs) identified in the South Coast Air Basin's State Implementation Plan (SIP).

As of May 5, 2002, federal air quality attainment status for San Bernardino County, as designated by the USEPA, was attainment for lead and sulfur dioxide, attainment /maintenance for nitrogen dioxide, non-attainment for CO, O<sub>3</sub> (8-hour), PM<sub>2.5</sub>, serious non-attainment for PM<sub>10</sub>, and extreme non-attainment for O<sub>3</sub> (1-hour). As of 2002,

state air quality attainment status for San Bernardino County, as designated by the California Air Resources Board, was listed as attainment or unclassified for CO, NO<sub>2</sub>, SO<sub>2</sub>, lead and visibility reducing particles and non-attainment for O<sub>3</sub> (1-hour and 8-hour) and PM<sub>10</sub>. Table 3-19 below indicates the state and federal ambient air quality standards for the criteria pollutants (CARB, 2005).

**Table 3-19: Federal and State Ambient Air Quality Standards**

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
Ozone (O <sub>3</sub> )	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> ) <sup>8</sup>		0.08 ppm (157 µg/m <sup>3</sup> ) <sup>8</sup>		
Respirable Particulate Matter (PM <sub>10</sub> )	24 Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		50 µg/m <sup>3</sup>		
Fine Particulate Matter (PM <sub>2.5</sub> )	24 Hour	No Separate State Standard		65 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	15 µg/m <sup>3</sup>		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—	—	—
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m <sup>3</sup> )		—		
Sulfur Dioxide (SO <sub>2</sub> )	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (60 µg/m <sup>3</sup> )	—	Spectrophotometry (Paranesanine Method)
	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (365 µg/m <sup>3</sup> )	—	
	3 Hour	—		—	0.5 ppm (1000 µg/m <sup>3</sup> )	
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )		—	—	
Lead <sup>8</sup>	10 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m <sup>3</sup>	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
Vinyl Chloride <sup>9</sup>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			

<sup>1</sup>This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.

<sup>8</sup>This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.

California Air Resources Board (11/29/05)

µg/m<sup>3</sup> = micrograms/cubic meter, ppm = parts per million

### New Federal Air Quality Standards: 8-hour Ozone and PM<sub>2.5</sub>

The Federal 8-hour Ozone and PM<sub>2.5</sub> standards have been promulgated by the U.S. EPA and upheld by the courts. United States EPA developed and implements the policy for the 8-hour ozone standard. Adoption of this policy and designation of non-attainment areas was completed April 2004 (FR vol. 69 no. 84 pgs 23858-23951). The preliminary designation of PM<sub>2.5</sub> non-attainment areas was designated in

December 2004. The SCAB was designated as Federal Non-attainment area for both 8-hour ozone and PM<sub>2.5</sub>.

Data from the two closest monitoring stations to the project area for 8-hour ozone (Crestline Station) and PM<sub>2.5</sub> (Big Bear City) was reviewed from 2001-2003. The data indicated the Federal and State PM<sub>2.5</sub> standard was not exceeded for this time period; however, the Federal 8-hour ozone standard was exceeded 71 to 82 days per year for this time period.

The Federal PM<sub>2.5</sub> nonattainment designations were published on January 5, 2005, with an effective date of April 5, 2005. In PM<sub>2.5</sub> nonattainment areas, conformity determinations on metropolitan transportation plans and TIPs must be made by FHWA/FTA by April 5, 2006, or the restrictions of a conformity lapse will apply. However, this deadline also affects project authorizations and approvals. After April 5, 2006, project-level conformity determinations must be made prior to final NEPA approval (i.e., ROD, FONSI, or CE) and/or project authorizations for non-exempt projects or project phases. This applies to project authorizations made after April 5, 2006, even if the final NEPA approval was before April 5, 2006.

This project is located in the South Coast Air Quality Management District (SCAQMD), which is nonattainment for PM<sub>2.5</sub>. This project will not increase diesel trucks, as such it will probably not have an adverse impact on PM<sub>2.5</sub>. When the FHWA transportation conformity regulation for the PM<sub>2.5</sub> hotspot analysis is finalized, we will analyze the project's impact on PM<sub>2.5</sub>.

### **Suspended Particulate Matter (PM<sub>10</sub>)**

Transportation facilities sometimes generate localized high concentrations of air pollutants ("hot spots"). For the purpose of transportation conformity, a project is subject to hot spot analysis when it is located in a Federal non-attainment area for PM<sub>10</sub>. The proposed project is located in San Bernardino County, a Federal non-attainment area. A qualitative hot spot analysis was completed in accordance with 2001 FHWA Guidance Qualitative Project-Level Hot Spot Analysis in PM<sub>10</sub> Non-attainment and Maintenance Areas (FHWA, 2001).

The PM<sub>10</sub> analysis consists of a three-step procedure: 1) compilation of PM<sub>10</sub> data from the nearest comparable air quality station for the last three years and the three-year 99<sup>th</sup> percentile averages; 2) comparison of the three-year 99<sup>th</sup> percentile average to the NAAQS; and 3) summarization of the likelihood of future violations with

literature references(s). The nearest comparable monitoring station to the project area is located in Crestline. The station is approximately 30 kilometers (20 miles) west of the project area and has a similar terrain, climate and environmental setting. The PM<sub>10</sub> data from 1999-2001 from this monitoring station is provided in Table 3-20 below.

**Table 3-20: Crestline Station PM<sub>10</sub> Data (microgram/meter<sup>3</sup>)**

4 Highest Daily PM <sub>10</sub> Readings	2001	2002	2003
Highest	74.0	52.0	47.0
2 <sup>nd</sup> Highest	69.0	52.0	46.0
3 <sup>rd</sup> Highest	44.0	51.0	42.0
4 <sup>th</sup> Highest	44.0	51.0	39.0

Source: ARB, 2004

The primary PM<sub>10</sub> NAAQS is 150 micrograms/meter<sup>3</sup> (see Table 3-19) is considerably greater than highest daily readings from 2001-2003 (see Table 3-20). There have been no violations of the PM<sub>10</sub> NAAQS for the last three years. The following is a summary from the Department's interim guidance regarding PM<sub>10</sub> hotspots and is based on University of California at Davis (UCD) studies pertaining to PM<sub>10</sub> violations:

“If no violations have been recorded in the project vicinity by air district monitors, and the monitored concentrations are not close to the NAAQS (e.g. within about 80 to 90 percent), Department/UCD studies strongly suggest that **no** PM<sub>10</sub> hot spot can occur as a result of a typical project.”

Since there have been relatively low ambient PM<sub>10</sub> concentrations over the last three years, the potential for a violation associated with highway traffic in the proposed project vicinity would be highly unlikely. The project does not cause or contribute to any new localized PM<sub>10</sub> violations or increase the frequency or severity of any existing PM<sub>10</sub> non-attainment area (FHWA, 2001).



## **Diesel Toxics**

The California Air Resources Board (CARB) has found that diesel particulate matter (PM) poses the greatest cancer risks among all identified air toxics. Diesel trucks contribute more than half of the total diesel PM emissions, with the remainder coming from stationary and other diesel combustion sources. However, the CARB has adopted a Diesel Risk Reduction Plan (DRRP) with control measures that would reduce the overall diesel PM emissions by about 85% from 2000 to 2020. In addition, total toxic risk from diesel PM is a function of lifetime exposure. Most sensitive receptors of diesel exhaust may only be exposed for a much shorter duration. Further, diesel PM is only one of many environmental toxics, and its cancer risks may be overshadowed by those of other toxics and other pollutants in various environmental media. Thus, while diesel exhaust may pose potential cancer risks, most receptors' short-term exposure would only cause minimal harm, and these risks would also greatly diminish over the operational life of the proposed project.

While there are currently no quantitative tools to assess the project's air toxics impact, we can evaluate whether there may be any potential impacts from the project by qualitatively comparing the build scenarios to the no-build scenario. The Department has concluded the project would not cause any additional negative air toxics impact, based on the following comparisons:

- (a) There will not be any substantial increase in diesel truck traffic in either of the build scenarios compared to the no-build scenario.
- (b) Either of the build scenarios would reduce congestion levels and stop-and-go conditions and change them into more free-flow conditions, and should therefore decrease the acceleration events that cause the highest per-vehicle exhaust emissions.

## **Naturally Occurring Asbestos**

Naturally occurring asbestos is known to occur in serpentine rock within California; however, serpentine rock is commonly found in the coastal ranges, Klamath mountains and Sierra Foothills. The proposed project area is located in San Bernardino County, and therefore it is unlikely that naturally occurring asbestos exists within the proposed project area (see Figure 3-35 and Section 3.13.2).

## **Structural Asbestos**

Asbestos Containing Materials (ACM) were identified within the existing bridge. SCAQMD Rule 1403 requires notification of the SCAQMD prior to disturbance of ACM. The contractor will be required to comply with all SCAQMD regulations for the disturbance and removal of ACM materials. The regulations and requirements will be provided to the contractor in the Department's Standard Specifications in Section 7-1.01F Air Pollution Control and Section 7-1.04 Permits and Licenses, as well as Special Provision S5-080-A07-30-00 which provides details for the removal and handling of asbestos-containing materials on the structure prior to demolition in conformance with state, local and federal regulations.

## **Carbon Monoxide (CO)**

In accordance with the Transportation Conformity Rule (40 CFR 93.115 through 117, 93.123 through 128) a qualitative analysis was completed for the proposed project using the Transportation Project-Level Carbon Monoxide Protocol. The protocol was developed by the Institute of Transportation at the University of California Davis and was approved by David P. Howekamp, Director of the Air Division of the U.S. EPA Region IX in October 1997. The protocol was strictly followed for the project and can be reviewed in its entirety in the Appendix of the May 2005 Air Quality Report, bound separately. Some of the analysis that supports the findings of the report that the CO impact of the proposed project has been sufficiently addressed is discussed below.

On April 21, 1998, the US EPA gave final approval to the interim State Implementation Plan (SIP) for CO to the SCAB. The approval was based on an analysis of peak hour traffic at four intersections with the highest traffic demands in the basin. The intersections were modeled by the EPA and determined to be in compliance. According to the SIP, intersections with more favorable traffic conditions than those modeled for the SIP by EPA are not expected to have adverse impacts and would not directly or cumulatively contribute to SCAB's nonattainment status (Caltrans, 2002e). Table 3-21 below indicates the traffic volumes modeled at the four intersections.

**Table 3-21: Traffic Counts for Intersections Modeled in Attainment Plan**

Location (AM/PM)	Eastbound	West Bound	Southbound	Northbound
<b>Wilshire-Veteran</b>	4,951 / 2,069	1,830 / 3,317	721 / 1,400	560 / 933
<b>Sunset-Highland</b>	1,417 / 1,764	1,342 / 1,540	2,340 / 1,832	1,551 / 2,238
<b>La Cienega-Century</b>	2,540 / 2,243	1,890 / 2,728	1,348 / 2,029	821 / 1,674
<b>Long Beach-Imperial</b>	1,217 / 2,020	1,760 / 1,400	479 / 944	756 / 1,150

Note: The traffic counts only include mainline and do not include left and right turn movements. If turn movements were included it would result in an additional 500 to 1,000+ vehicles at peak hour.

When the traffic volumes of the approved intersections are compared to the intersection at the proposed project location, SR-18 and SR-38 (see Table 3-22), the number of vehicles is substantially less, indicating that it is unlikely that the intersection would cumulatively worsen the basin's federal non-attainment status for CO.

**Table 3-22: Traffic Projections at Intersection of SR-18 and SR- 38**

Location	2002	2008	2028
<b>SR-18: south or west of 18/38 intersection</b>			
<b>AM (NB/SB)</b>	601 / 652	613 / 690	775 / 873
<b>PM (NB/SB)</b>	663 / 590	716 / 656	919 / 816
<b>SR-18: north or east of 18/38</b>			
<b>AM (NB/SB)</b>	548 / 592	578 / 651	741 / 835
<b>PM (NB/SB)</b>	659 / 541	710 / 584	910 / 749
<b>SR-38: north or east of 18/38</b>			
<b>AM (NB/SB)</b>	181 / 161	209 / 178	249 / 222
<b>PM (NB/SB)</b>	160 / 200	171 / 237	219 / 277

(NB/SB) = northbound/southbound Source: Caltrans, 2002e

Based on the data provided in Tables 3-21 and 3-22, the proposed project is expected to have substantially less CO impact than the intersections modeled and found to be in compliance within the CO SIP for SCAB.

Additionally, meteorological conditions of the proposed project area are considered more favorable than those used in the CO SIP model. The mixing height (the height at which persistent wind currents mix the air) modeled within the SCAB's CO SIP was approximately 1,000 meters (3,300 feet) above msl. The proposed project is located in the mountains at an elevation in excess of 2,000 meters (6,500 feet) above msl resulting in continuous mixing of the air and lower concentrations of pollutants.

### **3.14.3 Permanent Impacts**

#### **No Action/No Build and Alternatives 4 and 5**

There are no permanent impacts to regional air quality from this project. The project is included in an approved RTIP and RTP. Additionally, it is highly unlikely that any PM<sub>10</sub> hot spots would occur and the proposed project is in compliance with the CO SIP.

### **3.14.4 Temporary Impacts**

#### **No Action/No Build**

There are no temporary impacts to air quality as a result of this alternative.

#### **Alternatives 4 and 5**

All temporary impacts to air quality are associated with construction. Construction emissions would be generated from heavy equipment during construction.

Temporary increases in PM<sub>10</sub> would be generated from earthmoving and use of heavy equipment during excavation, cut and fill operations, batch plant activities, and construction of the proposed project. Emissions would vary depending on the type of construction activity and weather conditions.

### **3.14.5 Avoidance, Minimization and Compensation Measures**

Temporary impacts during construction would be minimized by requiring the contractor to utilize standard BMPs in accordance with Section 7-1.01F (Air Pollution Control) and Section 10.1 (Dust Control) of the Department's Standard Specifications, which also require compliance with SCAQMD's Rule 403 of the

Implementation Handbook (SCAQMD, 1999). The purpose of Rule 403 is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. SCAQMD requires at least one best available control measure (BACM) be implemented for each source of fugitive dust. The Department will implement all feasible control measures. A summary of control measures for each type of fugitive dust source is provided below.

- **Land Clearing/Earth-Moving:** watering (post-grading), pre-grading planning, chemical stabilizers, wind fencing, cover haul vehicles, and bed liners in haul vehicles;
- **Unpaved Roads:** paving/graveling, use of chemical stabilization, watering, reduced speed limits and reduced vehicular trips;
- **Storage Piles:** wind sheltering, watering, use of chemical stabilizers, altering load-in/load-out procedures, coverings;
- **Disturbed Surface Areas/Inactive Construction Sites:** chemical stabilization, watering, wind fencing, vegetation; and
- **Paved Road Track-Out Rule 403 paragraph d(5):** any person in the SCAB shall: A) prevent or remove within one hour, the track-out of bulk material onto public paved roadways as a result of their operation; B) take at least one of the actions listed in Table 3-23 and C)(i) prevent track-out of bulk material onto public paved roadways as a result of their operation and remove such material at anytime track-out extends for a cumulative distance of greater than 15 meters (50 feet) on to any paved public road during active operations; and (ii) remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusions of each work day when operations cease (SCAQMD, 1999).



**Table 3-23: Track-out Control Options**

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 30.5 meters (100 feet) and a width of at least 6.1 meters (20 feet).
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 7.6 meters (25 feet) and a width of at least 6.1 meters (20 feet), and install track-out control device immediately adjacent to the paved surface such that existing vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as being equivalent to the methods specified in this table may be used.

Source: SCAQMD, 1999

Prior to construction of the proposed project, the contractor will prepare a fugitive dust control plan inclusive of BACMs. Approval of the fugitive dust control plan shall be obtained from SCAQMD prior to any ground disturbance.

## 3.15 Noise

### 3.15.1 Regulatory Setting

The National Environmental Policy Act and California Environmental Quality Act provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and foster a healthy environment.

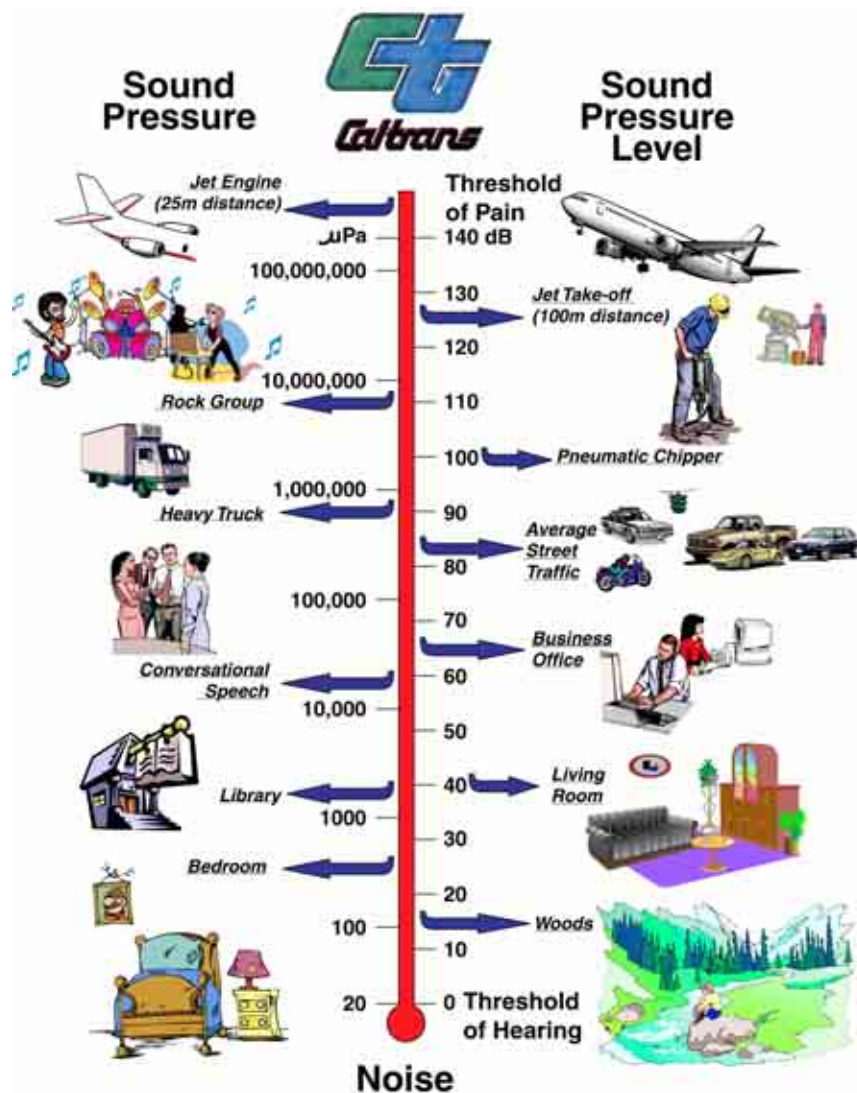
For highway transportation projects with FHWA involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use potentially impacted by the project. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 3-24 lists the noise abatement criteria and Figure 3-36 indicates the noise level of everyday activities.

Table 3-24: Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands.
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Caltrans, 2002f

Figure 3-36: Noise Pictorial of Everyday Activities



In accordance with the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, October 1998*, a noise impact occurs when the future noise level from the proposed project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level from the proposed project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If a noise impact is identified for the project, potential abatement measures must be considered. If the potential noise abatement measures are determined to be a reasonable and feasible expenditure of public funds, then those abatement measures are to be incorporated into the highway project.

The Department's Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. To determine whether a noise abatement measure is reasonable, a cost-benefit analysis is conducted taking the following criteria into account: absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies' input, newly constructed development versus development pre-dating 1978 and the total noise abatement allowance versus the project cost.

### **3.15.2 Affected Environment**

Noise levels in the project vicinity are almost exclusively generated by traffic on SR-18 and SR-38. Existing land uses within the project vicinity are open space and scattered U.S. Forest Service recreational residences properties. There are no commercial land uses within the project vicinity (all land uses are in activity categories B and C-see Table 3-24).

To describe existing and projected traffic noise levels, the Department uses the computer model Sound-32 to predict noise generated by traffic. The Sound-32 model was developed to predict hourly noise levels ( $L_{eq}$ ) for traffic conditions. Sound-32 is considered accurate within 1.5 decibels (dBA). This model is the Department's coded version of the FHWA Traffic Noise Prediction Model and is the Department's version of the Stamina program.

A noise analysis completed by the Department indicates that there are seven sensitive residential receptors within the project area. The existing noise levels are a result of traffic movement on SR-18. Vehicular traffic on SR-38 contributes to the ambient noise, but does not generate noise levels that warrant attenuation (see Table 3-25). A baseline for the existing noise environment in the project area was established by conducting short-term noise monitoring near receptors 1, 3 and 6 (see Figure 3-37 and 3-38 for all receptor locations). Sound level measurements were collected on August 20, 2002 using Bruel & Kjaer type 2236 Mediator sound level meter, located 1.5 meters (5 feet) above the ground. The sound level meter was calibrated using a Bruel & Kjaer type 4231 calibrator before and after use to comply with the American National Standards Institute (ANSI) standard S1.4-1971 to Type 1 (precision) sound level meters (Caltrans, 2002f).

Sound level measurements were recorded modeled at seven residential receptor (house) locations: five locations below the road (east of SR-18 on the lake side) and two locations above the road (west of SR-18 on top of the slope). These residential receptors and their locations in relation to Alternatives 4 and 5 are shown in Figures 3-37 and 3-38, respectively. No new development within the project area has occurred since the noise analysis was completed in 2002.

Based on the proposed project and the projected future traffic volumes, provided by the Department's Office of System Planning and Travel Forecasts, future traffic (year 2028) noise levels were predicted for the No Action/No Build and Alternatives 4 and 5. Table 3-25 shows both the existing and predicted noise levels for the No Action/No Build and Alternatives 4 and 5.

**Table 3-25: Noise Analysis Results**

Receptor I.D. #	Noise Level (Measured or Modeled)	Existing $L_{eq}(h)$ <sup>1</sup> dBA	2028 No Action/ No Build $L_{eq}(h)$ dBA	2028 Alt. 4 $L_{eq}(h)$ dBA	2028 Alt. 5 $L_{eq}(h)$ dBA	NAC <sup>2,3</sup> Category
1	Measured	61	65	65	62	Residential
2	Modeled	57	61	60	60	Residential
3	Measured	60	63	63	61	Residential
4	Modeled	58	62	62	63	Residential
5	Modeled	60	64	64	65	Residential
6	Measured	61	64	64	65	Residential
7	Modeled	61	64	64	64	Residential
Source: Caltrans, 2002f						

1.  $L_{eq}(h)$  One hour energy equivalent sound level.
2. NAC is the Noise Abatement Criteria (NAC) as defined in Title 23 Code of the Federal Regulations (CFR) Part 772 .
3. The NAC is based on Title 23 CFR 772; Abatement to be considered when predicted noise levels approach or exceed the NAC. The NAC for residential is  $L_{eq}(h)$  67 dBA.

Increased noise levels would occur at each receptor for both of the build alternatives and the No Action / No Build alternative. However future noise levels are not predicted to be substantial (an increase greater than 12 dBA) nor would they approach (within 1 dBA of the NAC) or exceed the NAC. Noise abatement would not be required for either of the proposed build alternatives (Caltrans 2002f). See the Department's Noise Study Report (November 2002) for complete details of the analysis.

Additionally, there is a potential for noise impacts to the recreational component of Category C along the lake and forest setting adjacent to the project area. Activities include boating, fishing, hiking and other recreational activities associated with the lake and forest setting. However, based on modeled, future noise levels for the proposed alternatives, noise impacts associated with the proposed alternatives on the activities associated with the shoreline, lake and forest setting would also be below the NAC for Category C (see Tables 3- 24 and 3-25). Boating is not allowed on the lake adjacent to the proposed project within approximately 215 meters (700 feet) of the existing dam. There are no known hiking trails adjacent to the proposed alternatives. The only recreational components potentially impacted would be shoreline uses and swimming.



Figure 3-37: Alternative 4 Noise Receptors

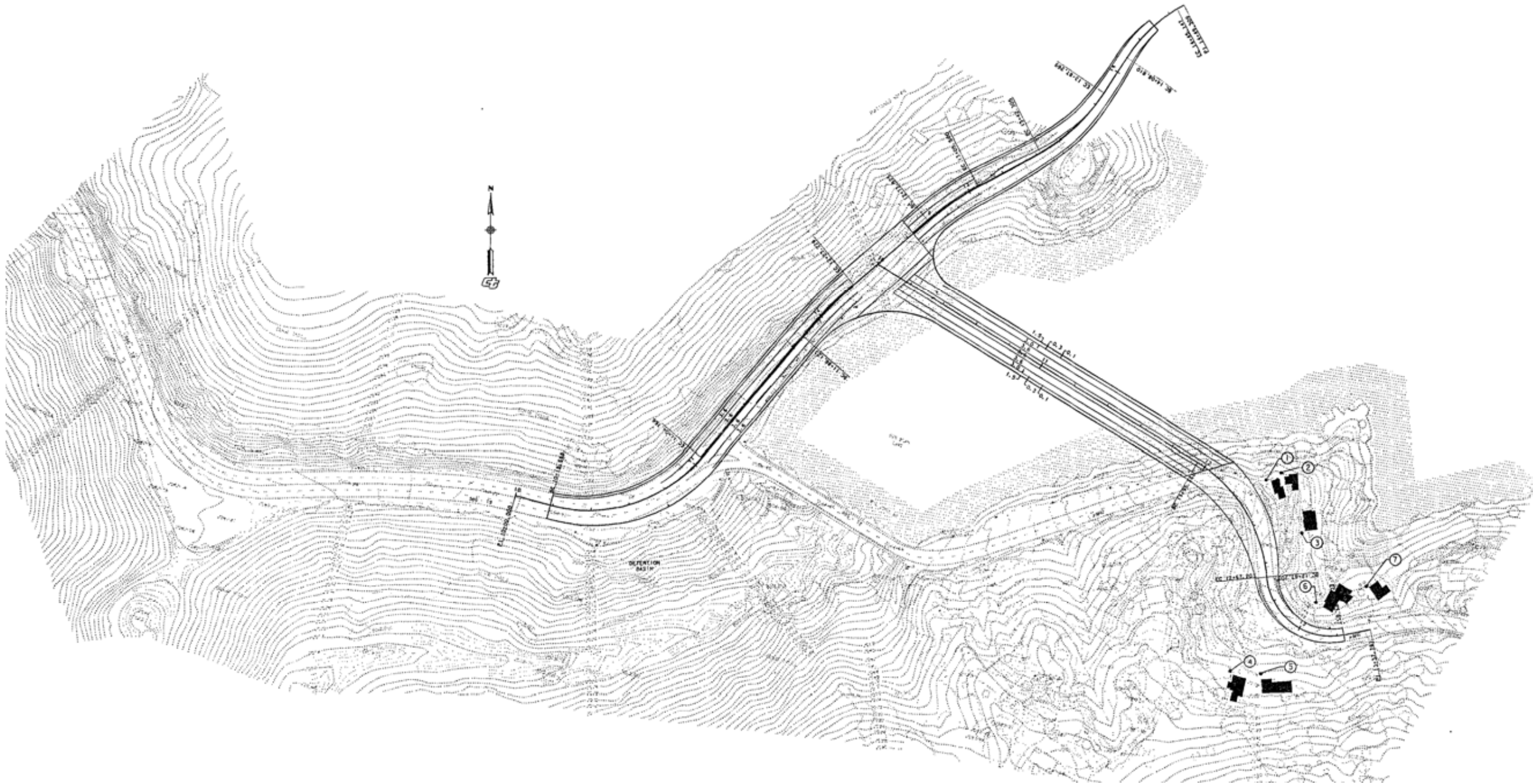
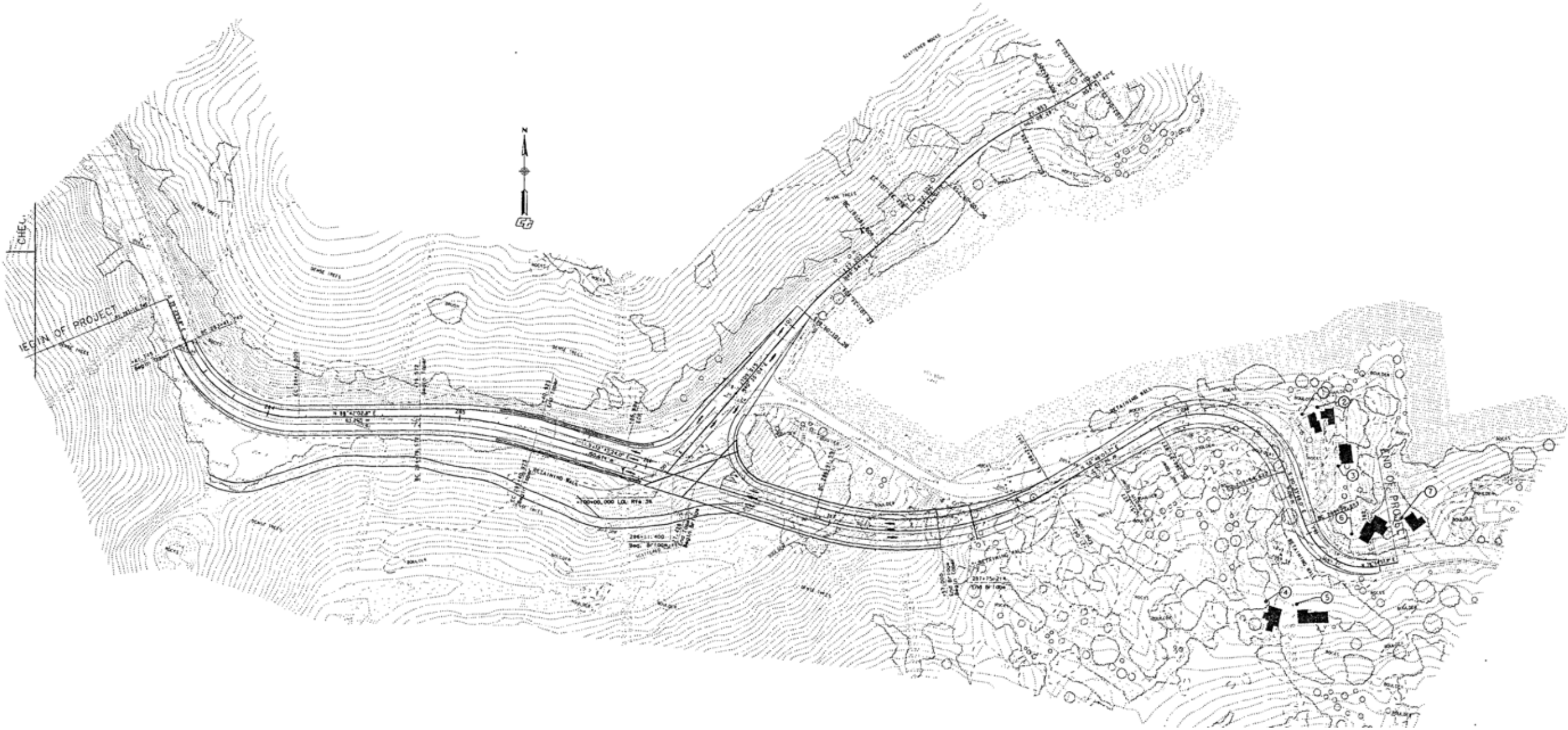


Figure 3-38: Alternative 5 Noise Receptors



### **3.15.3 Permanent Impacts**

#### **No Action/No Build and Alternatives 4 and 5**

None of the noise impacts through the design year of 2028 approach the NACs (within 1 decibel) for land use categories B or C of 67 and 72 dBA, respectively. The highest decibel reading projected for No Action / No Build and the build alternatives is 61 decibels (see Table 3-25). Additionally, none of the noise increases projected for the No Action / No Build or the build alternatives are substantial (greater than 12 dBA). The greatest increase from the existing noise environment through the design year is 4 decibels for the No Action / No Build and Alternative 4, and 5 decibels for Alternative 5 (see Table 3-25). The four decibel increases would occur for the No Action / No Build and Alternative 4 at receptors 1, 2, 4 and 5 and 1, 4 and 5, respectively. Five-decibel increases for Alternative 5 would occur at receptors 4 and 5 (see Figures 3-37 and 3-38).

### **3.15.4 Temporary Impacts**

All temporary noise impacts with the proposed project are associated with the construction of the proposed alternatives. Any construction equipment and/or construction activities that have the potential to exceed 86 dBA at 15 meters (50 feet) will be prohibited between the hours of 9:00 P.M. and 6:00 A.M.

Potential construction noise represents a short-term and temporary impact. The duration and level of construction noise depends on the type of construction activity:

- Ground clearing, including demolition and removal of existing structures, trees, rocks and soil;
- Excavation;
- Placement of foundations and roadbeds;
- Erection of structures, including bridges and retaining walls; and
- Finishing, including filling, grading, paving, landscaping, and cleanup operations.

Noise levels for potential types of equipment that would be used for excavation and construction of the proposed project are provided in Table 3-26. Intervening structures or topography can act as a noise barrier, thus further reducing noise levels.

**Table 3-26: Construction Equipment Noise Levels**

Type of Equipment	Model Tested	Max dBA a 15 meters (50 Feet) <sup>1</sup>
Backhoe	John Deer 609 A	85
Front Loader	Caterpillar 980	84
Skip Loader	Average Models	86
Dozer	Caterpillar D7E	84
Grader	Caterpillar 16	91
Scraper	Caterpillar 660	92
Compressor	Various Models Tested	80-89

<sup>1</sup>Max dBA is the highest sound pressure level over a specific time.

### 3.15.5 Avoidance, Minimization and Compensation Measures

The contractor will be required to comply with Section 5.1 of the Department's Special Provisions "Sound Control Requirements." Section 5.1 of the Special Provisions requires compliance with Section 7-1.01I described above as well as:

- Noise from the contractors operations shall not exceed 86 dBA at 15m (50 feet) between the hours of 9 PM and 6 AM. This requirement applies to all equipment on the job or related to the job (see Table 3-26 for noise levels associated with construction equipment at 15 meters [50 feet]); and
- All loud sound signals shall be avoided in favor of light warnings except those required by safety laws for protection of personnel.

## ***Biological Environment***

### **3.16 Wetlands and Other Waters of the United States**

#### **3.16.1 Regulatory Setting**

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 USC 1344) is the primary law regulating wetlands and waters. Wetlands are defined as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil condition." The term "other waters of the US" includes seasonal or perennial waters (creeks, lakes or ponds) and other types of habitats that lack one or more of three criteria for wetlands.

To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present under normal circumstances for an area to be designated as a jurisdictional wetland in accordance with the Clean Water Act.

The Executive Order for the protection of wetlands (EO 11990) regulates the activities of federal agencies with regard to wetlands. This Executive Order states that any federal agency, such as the FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

The Clean Water Act regulates the discharge of dredged or fill material into waters of the US, including wetlands. Section 404 of the Clean Water Act establishes a regulatory program that regulates the discharge of dredged or fill material. The ACOE has the authority under Section 404 of the Clean Water Act to regulate activities that could discharge fill or dredge material into. Permits issued by ACOE typically require mitigation to offset impacts to ensure no net loss of wetland acreage or values.

Waters of the U.S. include: navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. The ACOE jurisdictional area for waters of the U.S. is defined by the ordinary high water mark.

At the state level, wetlands are regulated by the CDFG. The CDFG wetland criteria are the same as the ACOE criteria mentioned above; however, CDFG requires only two of the three criteria be present for an area to be considered as a wetland. Waters of the State are regulated at the State level primarily by the CDFG and under certain circumstances the Regional Water Quality Control Board may also be involved.

Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement is required. California Department of Fish and Game jurisdictional limits for waters of the State are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the ACOE



may or may not be included within the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCBs issue water quality certifications in compliance with Section 401 of the Clean Water Act.

### **3.16.2 Affected Environment**

A regulatory jurisdictional assessment of the site was conducted to delineate the extent of waters of the US and/or waters of the State to determine the portions of the project that are ACOE and/or CDFG jurisdictional areas. Wetlands delineation was completed according to the survey methods defined by the 1987 *Corps of Engineers Wetlands Delineation Manual* and the criteria outlined by CDFG. A wetlands assessment was completed for this project in November 1994 and November 2005. The jurisdictional assessments were concurred with by the ACOE in January 1995 and November 2005. There are no jurisdictional wetlands within or adjacent to the proposed alignments of either Alternative 4 or 5. No hydric soils were present in the canyon or on the lakeshore. Additionally, Big Bear Lake and Bear Creek are considered both ACOE and CDFG jurisdictional waters and would be impacted by both of the proposed build alternatives. The November 2005 delineation report completed for the proposed project can be found in Appendix I of the NESR bound separately. The ACOE's letter of concurrence on the November 2005 jurisdiction assessment can be found in Appendix L.

#### **3.16.2.1 Alternative 4**

The shoreline below the ordinary high water mark is primarily devoid of vegetation and does not function as primary habitat for wildlife. The shoreline within the project area is heavily fished, which may contribute to the lack of vegetation along the shoreline of Big Bear Lake. Big Bear Lake is listed under section 303(d) of the Clean Water Act as an impaired water body. The general quality of waters of the U.S./State within the project area would be considered poor when compared with other undeveloped areas along the lakeshore.

The shoreline within the alignment of Alternative 4 was examined to determine if there were any ACOE or CDFG jurisdictional wetlands. Based on the dominance of upland plant species and the lack of species and soils indicative of wetlands, it was determined the area did not support the hydrophytic vegetation or hydric soils as defined by the 1987 *Corps of Engineers Wetlands Delineation Manual*. Soils

collected from the test pits were sandy, well drained soils, that did not have high organic content in the surface horizon, nor was there any streaking of subsurface horizons by organic matter, and there were not any organic pans. Per the 1987 *Corps of Engineers Wetlands Delineation Manual* the soils are not considered that which could support a wetland. The area is also not considered jurisdictional as a CDFG jurisdictional wetland since wetland parameters were not met due to the lack of wetland soils and the lack of understory vegetation beneath the willows. No ACOE or CDFG jurisdictional wetlands will be affected by this alternative.

Big Bear Lake is considered as jurisdictional waters by both the ACOE and the CDFG. Alternative 4 would require a Nationwide 404 permit for the placement of piers within Big Bear Lake. These impacts would occur below the trophic zone (depth at which light penetration is minimal) in an area of low biological productivity and of little use for either fish (due to low oxygen levels) or humans (approximately 20-30 meters [70-100 feet] deep at the bottom). Installation of the piers would result in temporary suspension of organic material; however, due to the depth of the lake bottom and the lack of biological productivity at the lake bottom it is anticipated only a limited amount of this material, if any, could be used by noxious aquatic plants and would not contribute to any additional noxious plant growth.

A streambed alteration agreement for construction impacts to the shoreline and lake would be required from the CDFG. Conditions of the permit would require the contractor minimize sediments from entering the lake. Subsequent to construction, all disturbed areas would be revegetated/stabilized and the overall water quality within the project area would be permanently improved by minimizing long-term sedimentation.

Alternative 4 would avoid Bear Creek.

### **3.16.2.2 Alternative 5**

Bear Creek Canyon is lush with densely vegetated plants typical for riparian areas (willows, nettles, vines, etc.). The vegetation within and on the canyon slopes can support a diverse/dense population of wildlife. Releases and natural seepage from the dam continually supply water to the creek. Waters within Bear Creek are considered high quality, which is verified by its ability to support a natural trout population and its status as a wild trout stream. However, the creek within the project area and up to 0.8 kilometers (0.5 miles) downstream is littered with trash and debris accumulated

over years. Within the project area Bear Creek does not contain its characteristic high water quality.

Soils within Bear Creek are not considered hydric and are characterized by boulders, dense cobbles and fine sands. Soils collected from the test pits were sandy, well drained soils, that did not have high organic content in the surface horizon, nor was there any streaking of subsurface horizons by organic matter, and there were not any organic pans. Per the 1987 *Corps of Engineers Wetlands Delineation Manual* the soils are not considered that which could support a wetland. There are no ACOE jurisdictional wetlands within the project area; however, other waters of the U.S. are present and this alternative will still require a Nationwide 404 permit. Much of the canyon bottom would also be considered a CDFG jurisdictional wetland. The limits of the CDFG wetland are delineated by the outer edges of the riparian vegetation.

Bear Creek is also considered jurisdictional waters by both the ACOE and CDFG. Rock-cobble within and adjacent to the creek defines the ACOE jurisdictional limits of the waters of the U.S. The creek bed up the canyon slopes to the transition line between the riparian habitat and the upland habitat defines CDFG jurisdictional limits of waters of the State.

Alternative 5 would also have impacts to the Big Bear Lake south shoreline associated with the curve realignment on to the shore. A CDFG Streambed Alteration Agreement and Nationwide 404 permit would be required for this alternative.

### **3.16.3 Permanent Impacts**

#### **No Action/No Build**

There would be no permanent impacts to jurisdictional wetlands or waters associated with this alternative.

#### **Alternative 4**

The permanently impacted jurisdictional waters are equivalent to the amount of the lake bottom that would be permanently occupied by the support piers. There are two support locations, each consisting of two piers. The total area that would be permanently impacted is 0.003 hectares (0.007 acres) of waters within both ACOE and CDFG jurisdictional waters. There would be approximately 250 cubic meters (325 cubic yards) of dredge and fill required at each of the two support locations.

There would be no permanent or temporary downstream impacts associated with Alternative 4 due to the presence of the dam.

### **Alternative 5**

Alternative 5 would have no permanent impacts to ACOE or CDFG jurisdictional waters. The permanent bridge structures would be located above the riparian habitat, outside of the larger CDFG jurisdictional area. The curve realignment structures associated with Alternative 5 would be located above Big Bear Lake's ordinary high water mark, outside of ACOE jurisdictional areas.

Due to the proposed bridge-type and construction methods, no permanent downstream impacts are anticipated. The proposed bridge and any falsework/trestle would span the creek and its flow would not be redirected or modified during or after construction. Additionally, a 12-meter (40-foot) ESA centered on the creek will be designated and fenced. No construction equipment or falsework/trestle bents would be allowed within 6 meters (20 feet) of either side of the creek.

### **3.16.4 Temporary Impacts**

#### **No Action/No Build**

There would be no temporary impacts to jurisdictional wetlands or waters associated with this alternative.

### **Alternative 4**

During construction, depending on the access option chosen, up to 0.081 hectares (0.200 acres) of ACOE and CDFG jurisdictional waters could be temporarily impacted due to vegetation removal and topographic modification. Temporary impacts would not have any impacts to the water flow into or out of the lake.

No temporary downstream impacts are anticipated with this alternative due to the presence of the dam.

### **Alternative 5**

Alternative 5 would temporarily affect 0.01 hectare (0.025 acre) of ACOE jurisdictional waters. Since CDFG has broader jurisdictional limits than ACOE, the CDFG jurisdictional amount of temporarily impacted areas would be 0.03 hectare

(0.074 acre). All temporary impacts are associated with vegetation removal and topographic modification associated with the construction of the proposed project.

No appreciable downstream impacts are anticipated with this alternative. Temporary, but minimal increases in sedimentation could occur; however, the section of Bear Creek within the project is slow moving and any sediment would settle out quickly. This occurs naturally within the project area and is evident by the absence of a gravelly bottom, characteristic to highly productive portions of the stream. The section of Bear Creek within the project area is of low quality and does not sustain any substantial trout population.

### **3.16.5 Avoidance, Minimization and Compensation Measures**

Mitigation for impacts to jurisdictional waters will be identified through the Federal Clean Water Act (Section 401 water quality certification/waiver permit and ACOE Section 404 permit) and Fish and Game Code (1602 [formerly section 1601] streambed alteration agreement) permitting process. Subsequent to selection of a preferred alternative, alternative specific consultation with permitting agencies would occur to determine appropriate mitigation. At this time the proposed avoidance, minimization and compensation measures include the following:

#### **Alternatives 4 and 5**

- Restoration and revegetation of disturbed areas would be completed subsequent to construction. The conceptual revegetation plan is provided in Appendix E.
- Trash removal within the creek bottom and slopes from the dam to ½ mile downstream of the dam.

#### **Alternative 5**

- The area within 6 meters (20 feet) of each side of Bear Creek would be designated as an Environmentally Sensitive Area (see Figure 2-12). No construction equipment or personnel would be authorized to enter without permission from the Resident Engineer and Department Biologist. No trestle bents or activities associated with construction of the trestle would be allowed within the ESA.



- The boundary of the construction impact area identified in Figure 2-12 will be fenced to minimize the potential for additional impacts to vegetation and other waters of the U.S. or State associated with the construction of this Alternative.

## **3.17 Vegetation**

### **3.17.1 Regulatory Setting**

The USFWS and CDFG share regulatory responsibility for protection of “special-status” plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Threatened and Endangered plant species protected under FESA and CESA are discussed in Section 3.20.

This section of the document discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at USC 16 Section 1531, et. seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found in the California Fish and Game Code, Section 2050, et. seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 21000-21178.

### **3.17.2 Affected Environment**

A total of 39 plant species from 19 plant families were identified within the biological study area (BSA) shown in Figure 3-39. The BSA includes three distinct plant communities: lake shoreline, Jeffrey pine forest, and willow scrub. The shoreline area supports some elements of the forest and willow scrub communities and is treated as a distinct habitat due to its separation from other communities and its proximity to the lake. The three plant communities are described below.

BSA limits were developed by accounting for the impact areas both within and outside of the construction impact area. The BSA includes the construction impact areas and an additional buffer of 76 meters (250 feet). The total BSA survey limits extended from approximately 260 meters (850 feet) east of the dam, to approximately 450 meters (1,500 feet) west of the dam. The width of the BSA varies from a maximum of approximately 365 meters (1,200 feet) on the eastern end, to approximately 300 meters (1,000 feet) on the western end. Generally speaking, the northern and southern limits of the BSA are confined by the steep mountainsides adjacent to the project area (see Figure 3-39).

Figure 3-39: Biological Study Area



## Jeffrey Pine Forest

The majority of the project site supports a conifer forest dominated by Jeffrey pine (*Pinus jeffreyi*). In addition to Jeffrey pine, north-facing slopes support occasional white fir (*Abies concolor*) and black oak (*Quercus kelloggii*). The gentler, south-facing slopes support a substantial cover of black oak in addition to the Jeffrey pine. Aerial photographs of the project study area show that black oak approaches 50 percent of the forest cover in some areas. Mature and healthy trees characterize the forest in this location.

The density and composition of the forest varies with the slope, elevation, soil, and hydrology. Generally, the site is characterized by fairly open stands of mature Jeffrey pine, with a thick leaf litter layer and an open understory of grasses and shrubs. The most commonly encountered understory shrubs include serviceberry (*Amelanchier utahensis*), snowberry (*Symphoricarpos parishii*), snowbush (*Ceanothus cordulatus*), chinquapin (*Chrysolepis sempervirens*) and manzanita (*Arctostaphylos patula ssp. Platyphylla*). Grasses include wheat grass (*Agropyron sp.*) and Indian rice grass (*Oryzopsis hymenoides*).

## Bark Beetle

Bark beetles are a native species to the San Bernardino National Forest. Under normal conditions the beetles lay their eggs only in less healthy trees that can't produce enough sap to protect themselves. However, the forest is overgrown and lacks diversity in species and age. Normal forest tree densities are approximately 20 to 50 trees per acre and many areas within the forest now have densities approaching 200 to 500 trees per acre. The higher densities combined with five years of drought have decreased the amount of water available to each tree, and prevents them from producing their normal amount of sap. Without adequate amounts of sap, the trees are susceptible to inhabitation by the bark beetle. The beetles have thrived under these conditions and their population has increased dramatically. It was estimated that 40 percent of the forest is dead or dying due to the bark beetle infestation. With current technologies and knowledge, the only real solution to the infestation problem is rain.

The USFS, with the help of Caltrans and other agencies, began removing trees in the summer of 2003 to reduce the fire danger to communities and property within the forest boundary. Hundreds of thousands of the dead trees remain and these numbers will continue to increase until adequate rain amounts are accumulated to provide the trees with enough water to produce adequate sap.

## Willow Scrub

Bear Creek emerges from the outlet works at the base of Big Bear Dam and supports willow scrub vegetation along the canyon bottom and lower banks of the drainage. This community is characterized by dense growth of arborescent willow (*Salix sp.*) shrubs approximately 30 meters (100 feet) downstream from the dam. Two herbaceous species, giant creek nettle (*Urtica dioica*) and willow herb (*Epilobium sp.*), are common in the moister areas of the willow scrub community. Vegetation along the upslope periphery of the willow scrub is dominated by wild rose (*Rosa woodsii*).

## Lichens

Surveys for lichen were conducted by consultant biologists who collected specimens from rocks, bark of white fir, and from the soil. In some cases, several species of lichens were present within a single sample. The specimens were taken to Charis Bratt of the Santa Barbara Natural History Museum for identification. Ms. Bratt is the nearest recognized expert on lichens and is familiar with the lichens of the San Bernardino Mountains. The species remain in the collection of the Santa Barbara History Museum as vouchers of this study. Survey results are discussed below and can be found in Appendix G of the NESR (bound separately).

Lichens are divided into three groups according to their general appearance. Foliose lichens are leafy looking, have a distinct upper and lower surface, and are loosely attached to the substrate. Fruitle lichens are pendulous or shrubby, with rounded or flattened branches, and are attached at only one point, if at all. Crustose lichens are firmly attached to the substrate, appearing to form a crust.

All three types of lichens were present at the Big Bear Dam project site. The lichen species found were goldspeck (*Candelariella dispersa*), common goldspeck (*Candelariella vitellina*), pepper-spore (*Lecanora muralis*), multicolored rim (*Lecanora pacifica*), brown tile (*Lecidea atrobrunnea*), wolf (*Letharia vulpina*), elegant camouflage (*Melanelia elegantula*), rock-olive (*Peltula michoacanensis*), rosette (*Physcia tribacia*), powder-tipped rosette (*Physcia dubia*), cobblestone (*Pleopsidium chlorophanum*), map (*Rhizocarpon geographicum*), *Rhizocarpon sp.*, pepper-spore (*Rinodina sp.*), emery rock tripe (*Umbilicaria phaea*), and pincushion sunburst (*Xanthoria cf. polycarpa*).

Rock-olive (*Peltula michoacanensis*) is proposed for the “Red list”, according to the California Lichen Society website (California Lichen Society, 2001). This lichen is



known to primarily occur in Mexico; however, it has been obtained from two locations in Riverside County. The Big Bear collection represents a new county location for this species.

A species already on the “Red list” is the *Rhizocarpon concentricum*. Although a species of *Rhizocarponxocarpon* was found on site, it could not be determined if it was the “Red list” species (California Lichen Society, 2001).

#### Laguna Mountains jewel-flower (*Streptanthus bernardinus*)

This plant is a SBNF Sensitive species and is on CNPS List 1B. It occurs between 1,650 and 2,100 meters (5,400 and 7,000 feet) in chaparral and coniferous forests from the San Gabriel Mountains to the Laguna Mountains.

Three Laguna Mountains jewel-flowers were found within the survey area approximately 30 meters (100 feet) southwest of Alternative 5’s construction impact area, adjacent to Bear Creek in 1992. Potential habitat for this plant exists throughout the BSA; however, no Laguna Mountains jewel flowers have been found during the last three rare plant surveys conducted in 2001, 2002 and 2003.

#### **Lake Shoreline**

Within the project area, steep slopes covered by a mix of boulders and largely barren soils characterize the Big Bear Lake shorelines. Except for scattered willows and Jeffrey pines, the shorelines are essentially devoid of vegetation due to continual disturbance by anglers. Vegetation at and above the road on the north shore is a sparse covering of shrubs, including Great Basin sagebrush (*Artemisia tridentata*) and common rabbit-brush (*Chrysothamnus nauseosus*). Habitat (large conifers or snags with suitable perch branches and good vantage points) around the lake is used during the day by over-wintering bald eagles that forage at the lake.

#### **3.17.3 Permanent Impacts**

Permanent impacts to vegetation are associated with the areas where new roadway or retaining walls will be placed. Permanent impacts associated with the proposed alternatives are provided below in Table 3-27.

**Table 3-27: Vegetation Community Permanent Impact Summary**

Proposed Alternative	Vegetation Community	Permanent Impacts (hectares/acres)	Approximate Number of Trees and Shrubs Removed
Alternative 4	Jeffrey Pine Forest	0.20 / 0.5	40
	Lake Shoreline <sup>1</sup>	0.12 / 0.30	
	Willow Scrub	0.0	
Alternative 5	Jeffrey Pine Forest	0.35 / 0.9	160
	Lake Shoreline <sup>1</sup>	0.04 / 0.10	
	Willow Scrub	0.0	

<sup>1</sup> All permanent impacts associated with the shoreline would be located above the OHWM

### 3.17.4 Temporary Impacts

Temporary impacts to vegetation communities are those impacts within the construction impact areas and potential construction staging and storage areas that are not already paved or included in the permanent impact areas. In addition to the temporary impacts within the construction impact areas (shown in Figures 2-9 and 2-12), the proposed 0.2 hectare (0.5 acre) equipment storage and/or construction staging area proposed for Alternative 4 would also impact vegetation (see Figure 2-8). This area is included in Table 3-28 under lake shoreline impacts.

All areas within the construction impact areas are potentially available for use during construction. The temporary impact summary provided in Table 3-28 represents the maximum temporary impacts to vegetation associated with the proposed project.

**Table 3-28: Vegetation Community Temporary Impact Summary**

Proposed Alternative	Vegetation Community	Temporary Impacts (hectares/acres)
Alternative 4	Jeffrey Pine Forest	0.0
	Lake Shoreline	0.34 / 0.80
	Willow Scrub <sup>1</sup>	0.0
Alternative 5	Jeffrey Pine Forest	1.97 / 4.87
	Lake Shoreline	0.10 / 0.25
	Willow Scrub <sup>1</sup>	0.03/0.074

<sup>1</sup>. CDFG jurisdictional area, which encompasses ACOE jurisdictional area impacts.

### **3.17.5 Avoidance, Minimization & Compensation Measures**

- 1) Vegetation removal within the project limits should not occur between April 1st and August 30th to avoid impacts to nesting birds. If this is not possible due to schedule, a qualified biologist will survey the area before vegetation removal to verify presence/absence of active nests. If an active nest is found in a tree that is to be up-rooted/cut, the appropriate resource agencies must be contacted and appropriate mitigation measures will be discussed at that time in accordance with the Migratory Bird Treaty Act.
- 2) Restoration will include planting of mature willows and willow cuttings and other native species, as outlined in the conceptual revegetation plan (see Appendix E), to help recreate the existing environment. Some downed trees of all ages and decay class will be left within the project area where feasible.
- 3) No earthen access roads (i.e. dirt roads) will be allowed, to ensure slope stability and minimize impacts to existing vegetation.
- 4) The contractor will comply with standard specifications requiring minimization of impacts to native vegetation and topography.
- 5) Some larger boulders with lichens attached would be placed back into the project area once construction is completed, as outlined in the Conceptual Revegetation Plan. A USFS botanist will collect samples of the different lichens before construction to be deposited at repository to document the occurrence of the species at the proposed project location.

## **3.18 Wildlife**

### **3.18.1 Regulatory Setting**

Many state and federal laws regulate impacts to wildlife. The USFWS, the National Marine Fisheries Service (NMFS), and the CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed nor proposed for listing under the federal or state endangered species acts. Species listed, or proposed for listing, as threatened or endangered are discussed in Section 3.20. All other special-status wildlife species potentially impacted by the proposed project are discussed within this section.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Bald Eagle Protection Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1602 – 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

In addition to state and federal laws regulating impacts to wildlife, the project is also subject to the USFS regulations as outlined in the Land and Resource Management Plan. All of the alternatives lie within the Big Bear management area and within watershed/wildlife management emphasis areas as designated by the SBNF Land and Resource Management Plan. The USFS management guidelines associated with the watershed and wildlife management designation includes the following:

- This management area contains the greatest concentration of endangered, sensitive and threatened species in the SBNF. Emphasis of management activities will be on habitat enhancement for sensitive plant and wildlife species. Coordination with appropriate agencies to protect and enhance bald eagle and sensitive plant and animal habitats will be emphasized (USFS, 1988).
- Manage to maintain or enhance watershed integrity and health through an active sediment management program. Provide high levels of habitat for emphasis species through vegetation management activities, in-stream improvements for fisheries and other habitat improvements. Manage for increased water yields, as opportunities become available (USFS, 1988).

The wildlife study area is the same as the BSA limits previously described in 3.17.2 and identified in Figure 3-39.

### **3.18.2 Affected Environment**

#### **Aquatic Species**

Big Bear Lake and Bear Creek are important recreational fisheries in Big Bear Valley. The following fish are present within Big Bear Lake and Bear Creek, and may be present within the areas potentially impacted by construction of the proposed project:

- Alternative 4 - Big Bear Lake: Rainbow Trout, Large Mouth Bass, Small Mouth Bass, Catfish, Crappie, Bluegill and Pumpkin Seed
- Alternative 5 - Bear Creek: Rainbow Trout and Brown Trout.

Big Bear Lake is considered a trophy trout fishery and is stocked every couple of weeks by CDFG during the spring and summer months. The CDFG manages Bear Creek as a wild trout stream. Bear Creek is one of five streams designated by the California Fish and Game Commission as a wild trout stream in southern California.

#### **Terrestrial Species**

Due to limited development (i.e. contiguous open space) within the SBNF, there is the potential for many different types of wildlife. Table 3-29 indicates the species observed in the project area during various surveys. Identification of these fauna were made by call identification or identified by sign (tracks, scat or other) indicating their use of the area.



**Table 3-29: Wildlife Identified Within the Project Area**

Family	Common Name	Scientific Name
<b>Reptiles</b>		
Scincidae	Western Skink	<i>Eumeces skiltonianus</i>
Iguanidae	Side-blotched Lizard	<i>Uta stansburiana</i>
	Western Fence Lizard	<i>Sceloporus occidentalis</i>
Boidae	Southern Rubber Boa	<i>Charina bottae</i>
<b>Birds</b>		
Podicipedidae	Eared Grebe	<i>Podiceps nigricollis</i>
Anatidae	Ruddy Duck	<i>Oxyura jamaicensis</i>
Accipitridae	Bald Eagle	<i>Haliaeetus Leucocephalus</i>
	Red-tailed Hawk	<i>Buteo Jamaicensis</i>
Ralidae	American Coot	<i>Fulica Americana</i>
Columbidae	Rock Dove	<i>Columba liva</i>
Strigidae	Spotted Owl	<i>Strix occidnetalis</i>
Picidae	Northern Flicker	<i>Colaptes auratus</i>
Corvidae	Steller's Jay	<i>Cyanocitta stelleri</i>
	Scrub Jay	<i>Aphelocoma coerulescens</i>
	Common Raven	<i>Corvus corax</i>
Paridae	Mountain Chickadee	<i>Parus gambeli</i>
Sittidae	White-breasted Nuthatch	<i>Sitta Carolinensis</i>
Muscicapidae	Mountain Bluebird	<i>Sialia currucoides</i>
Sturnidae	European Starling	<i>Sturnus vulgaris</i>
Emberizidae	Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
	Red-winged Blackbird	<i>Agelaius phoeniceus</i>
	Brewer's Blackbird	<i>Euphagus cyanocephalus</i>
Fringillidae	Purple Finch	<i>Carpodacus purpureus</i>
Passeridae	House Sparrow	<i>Passer domesticus</i>
<b>Mammals</b>		
Vespertilionidae	Yuma Myotis	<i>Myotis yumanesis</i>
	Long-legged Myotis	<i>Myotis volans</i>
	Western Pipistrellus Hesperus	<i>Pipistrellus hesperus</i>
Molossidae	Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>
	Western Mastiff Bat	<i>Eumops perotis californicus</i>
Leporidae	Black-tailed Jackrabbit	<i>Lepus Californicus</i>
Sciuridae	Western Gray Squirrel	<i>Sciurus griseus</i>
Geomyidae	Botta's Pocket Gopher	<i>Thomomys bottae</i>
Muridae	House Mouse	<i>Mus musculus</i>
Canidae	Coyote	<i>Canis lantrans</i>
	Domestic Dog	<i>Canis familiaris</i>
Felidae	Mountain Lion	<i>Felis Concolor</i>
Cervidae	Mule Deer	<i>Odocoileus hemionus</i>

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### Species of Special Concern

The California Spotted Owl (*Strix Occidentalis*): The California Spotted Owl is listed as a species of special concern by the CDFG and as a sensitive species by the SBNF. The owl was petitioned for listing as an endangered species in December 1999; however, the USFWS determined the collection of scientific data did not warrant listing of the species at this time.

In the SBNF, spotted owls nest in old, dense, multi-layered forests with greater than 70% canopy closure. Stands with large-diameter snags, trees with large cavities, and high levels of downed materials are preferred. The spotted owls in southern California feed mostly on woodrats and other small mammals. The breeding season begins in early March and extends through June (peak period is April/May).

The SBNF spotted owl management strategy follows the Sierra Interim Guidelines, which calls for “owl management areas” within a 2.4-kilometer (1.5 mile) radius of nest sites within the forest. The USFS has a goal to protect 1,032 hectares (2550 acres) of mixed conifer forest with at least 40% canopy closure within the 2.4-kilometer radius of each spotted owl nest with 121 hectares (300 acres) of at least 70% canopy closure around the nest site; however, many spotted owl territories within the San Bernardino Mountains do not contain 1,032 hectares (2,550 acres) of this specific habitat.

Since the proposed project is within the 2.4-kilometer (1.5 mile) radius of the known Bear Creek spotted owl nest site, it was important to assess impacts to habitat in the project vicinity. A second nest, North Bear Creek, is farther away but could be indirectly impacted by construction noise/batch plant activities. In 1995, it was reported that the two nests successfully produced fledglings (usually 2) for the previous 6-7 years (LaHaye, 1995).

Two spotted owl pairs, which were present at the sites in 1998, were again detected by surveys conducted by William S. LaHaye in 1999. The Bear Creek pair was nesting less than one-quarter mile south of the proposed equipment storage/construction staging area located approximately Postmile 43.75-43.85 (see Figure 2-7).

### California Spotted Owl Surveys

Forest Service protocol (February 1993) surveys for spotted owls were conducted in the Bear Creek area from April 5 to July 12, 1999. Habitat assessment surveys were conducted on June 22 and 28, 1995. Transects were walked throughout the entire project site covering each proposed alternative. The surveys included a 60-meter (200-feet) buffer area along each alternative to account for impacts both direct and indirect that cannot be contained within the proposed project limits, such as noise.

The habitat was assessed based on density and disturbance. In reference to the spotted owl, habitat consisting of 40-70% cover is considered potential foraging

habitat while habitat with 70-100% cover has potential for nesting sites. Survey results can be found in Appendix C of the NESR, bound separately.

Bats:

Surveys for bats were conducted on four nights in July and August of 2001 on the north and south sides of the dam. The surveys were conducted between the times that bats typically emerge until the time bats typically enter the roost.

About 1,600 echolocation calls (sounds used by bats to navigate as well as find food) were recorded and analyzed for the study during the four nights of surveys. Survey results can be found in Appendix H of the NESR (bound separately). Dr. Michael O'Farrell verified calls that were unidentified or in question. Weather conditions including temperature and relative humidity were recorded every 30 minutes during the surveys. Survey stations were set up on the north and south sides of the dam.

Five bats species were detected by identification of their echolocation calls near the bridge. Bat species detected during surveys included western pipistrelle (*Pipistrellus hesperus*), Yuma myotis, long-legged bats, mastiff bats, and Mexican free-tailed bats (*Tadarida brasiliensis*).

The western pipistrelle and Yuma myotis bats were recorded only in the early evening. Mexican free-tailed bats' echolocation calls were recorded later in the evening, throughout the remainder of the night. The western mastiff bat was also recorded later in the evening, and then sporadically throughout the night. Finally, long-legged myotis had its peak of activity in the early evening and was sporadically recorded throughout the rest of the night.

Three of the five species of bats detected (Yuma myotis, long-legged myotis and mastiff bat) are considered sensitive by the USFWS, USFS and CDFG. No endangered or threatened bat species were detected during surveys.

### **3.18.3 Permanent Impacts**

#### **Aquatic Species**

##### **No Action/No Build**

There would be no permanent impacts to aquatic species with this alternative.

##### **Alternative 4**

Piers associated with the support locations would permanently occupy part of the Big Bear Lake aquatic environment; however, subsequent to the construction of the proposed alternative there would be no permanent impacts to aquatic species. It is likely that the piers would be colonized by aquatic vegetation creating habitat for fish species that inhabit the west end of the lake. This would be a permanent beneficial impact. Additionally, inclusion of the proposed detention basins would improve overall water quality within Big Bear Lake and would also be a permanent beneficial impact to aquatic species.

##### **Alternative 5**

There would be no permanent impacts to aquatic species. The bridge supports would be located above the canyon aquatic environment and the curve realignment would be located above the OHWM. Areas disturbed within the canyon during construction would be revegetated in general accordance with the conceptual restoration plan in Appendix E. Inclusion of the proposed detention basins would also improve overall water quality within Bear Creek, and would be a permanent beneficial impact to aquatic species.

#### **Terrestrial Species**

##### **No Action/No Build**

There would be no permanent impacts to terrestrial species with this alternative.

##### **Alternatives 4 and 5**

There would be a permanent loss of terrestrial wildlife habitat resulting from the permanent removal of mature vegetation and natural topography in locations where new roadway, fill, and retaining walls are proposed. This permanent loss of habitat will not decrease or contribute to the decrease of any common terrestrial species

populations to a degree that would approach or require listing under the federal or state Endangered Species Acts.

### **Species of Special Concern**

#### **No Action/No Build**

This alternative would not permanently impact the California spotted owl or bats within the project area.

#### **Alternatives 4 and 5**

##### **California spotted owl**

Neither Alternative 4 nor Alternative 5 would have permanent impacts to the California spotted owl.

##### **Bats**

Alternatives 4 and 5 would result in the removal of large quantities of rocks and rock outcroppings. This would result in the permanent removal of potential roosting and nursery habitat; however, there are adequate areas for bats to relocate to during and subsequent to construction.

### **3.18.4 Temporary Impacts**

#### **No Action/No Build**

There would be no temporary impacts to aquatic, terrestrial, or special status species with this alternative.

#### **Alternatives 4 and 5**

##### **Aquatic Species**

Potential impacts to the resident aquatic species populations would include:

- Temporary loss of adjacent streamside/lakeside vegetation; and
- Potential for temporary, incremental increases in siltation during construction and until revegetated areas mature.

## **Terrestrial Species**

Potential impacts to the resident terrestrial species populations would include:

- Encroachment into relatively undisturbed habitat resulting in potential construction related mortality;
- Temporary disturbance/loss of nesting, roosting and foraging habitat for birds protected under the Migratory Bird Treaty Act;

## **Special Status Wildlife Species**

### California spotted owl

#### **Alternative 4**

This alternative will temporarily impact approximately 0.2 hectares (0.5 acres) of foraging habitat. The potential foraging habitat above the retaining walls/cut slopes could not be avoided. Based on surveys, no nesting habitat for the owl will be affected by this Alternative.

#### **Alternative 5**

This alternative will temporarily impact approximately 0.4 hectares (1.0 acre) of foraging habitat. The potential foraging habitat above the retaining walls/cut slopes and where the abutments will be placed in the canyon could not be avoided. No nesting habitat for the owl will be directly impacted.

### Bats

#### **Alternatives 4 and 5**

Bats within the project area would be temporarily impacted by construction activities. Vibration and noise associated with various construction activities would be a nuisance to bats and could cause them to relocate while construction activities are occurring.

## **3.18.5 Avoidance, Minimization and Compensation Measures**

Avoidance, minimization and compensation measures identified in Section 3.20 Threatened and Endangered Species would also minimize/mitigate impacts to common aquatic and terrestrial wildlife. Proposed protection measures for special status wildlife species are as follows:



## Alternatives 4 and 5

### California spotted owl

- Minimize impacts to foraging areas by minimizing the number of retaining walls;
- Recreate rock crevices and natural contours for prey species during restoration of the areas impacted during construction; and
- A pre-construction survey would be conducted the spring before ground disturbance (starting in February) to determine occupancy and exact nest locations. If nests are located within 0.4 kilometer (0.25 mile) radius of any of the construction sites, including staging areas, and batch plants, a limited operating period may be required to avoid the nesting period. The Department and the USFS biologists will immediately review current construction activities. They would determine whether these activities are acceptable during daylight hours or if construction restrictions need to be developed.

The activities at the storage area location are not expected to affect the owls even though it is within the 0.4-kilometer (0.25 mile) radius. The slope and dense vegetation between the nesting location and the storage area could minimize sound dispersion. This site has been used before for construction activities; however, no surveys were complete to determine if the owls were affected by the previous construction activities.

- If rock will be crushed at the storage area, the crushing will be completed out of the owl-nesting season if possible. If crushing is to be conducted during the owl-nesting season, a noise impact evaluation on the nesting owls within the area will be completed and the appropriate construction measures implemented.

### Bats

- Suitable bat structures will be built under the bridge or stand-alone structures will be built adjacent to the bridge. If possible the new bridge design will be conducive to habitation by bats.
- Recreate rock crevices and natural contours during restoration of the construction areas for bats to inhabit subsequent to construction.

## **3.19 Invasive Species**

### **3.19.1 Regulatory Setting**

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction and/or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

The invasive species study area is the same as the BSA limits previously described in Section 3.17.2 and identified in Figure 3-39.

### **3.19.2 Affected Environment**

The majority of the project area consists of rock outcroppings and other rocky substrate that do not readily support invasive species. The likelihood of the proposed project increasing the spread of invasive plants is minimal. However, construction activities within and adjacent to Big Bear Lake and Bear Creek have the potential to spread existing invasive plant species through normal construction activities. Equipment operating around the creek and/or lake where invasive plants already exist could spread the species to other areas where construction occurs or to areas where the equipment is cleaned. The conceptual revegetation plan (Appendix E) addresses the monitoring of invasive species within the project limits.

#### **Aquatic Invasive Species**

##### Animals

The lake is stocked for recreational purposes with non-native fish. The species of fish commonly stocked are rainbow trout, catfish, crappie, carp, and large mouth bass. These fish can be seen as invasive under certain circumstances. Historically, Bear Creek was stocked with non-native fish but this has not occurred recently. The area around Bear Creek was altered with the introduction of beaver into the bear creek system; however, the beaver has had no impacts to the area within or adjacent to the project.

## Plants

Big Bear Lake contains large amounts of Eurasian water milfoil and coontail. These plants grow in the upper 4.5–6.0 meters (15-20 feet) of the lake and are considered noxious weeds. The BBWMD estimates that these plants cover 325 hectares (800 acres) of the lake's 1,215 hectares (3,000 acres). BBWMD records indicate that 73 percent of the weeds harvested are milfoil and 20 percent are coontail. These plants have resulted in the loss of the majority of the native plants from the lake. The Lake's TMDL task force has developed plans for the eradication of noxious weeds from the lake (BBWMD, 2003).

## **Terrestrial Invasive Species**

### Animals

Non-native birds such as starlings and house sparrows were observed during various biological surveys.

### Plants

Invasive plants were identified by using various invasive plant lists from: the California Department of Food and Agriculture, the California Invasive Plant Council, the Nature Conservancy, and the California Weed Science Society. Four species of invasive plants were identified within the BSA which included: eupatorium (*Ageratina adenophora*), prickly lettuce (*Lactuca serriola*), sweet yellow clover (*Meilotus officinale*) and woolly mullein (*Verbascum thapsis*). These invasive plant species were most likely transferred to the area by vehicle tires and through wind dispersion from landscaped yards. Invasive species have not been able to out-compete native species. Others may have been overlooked or were unidentifiable due to the season. It was estimated that substantially less than 1 percent of the project area contains invasive species.

## **3.19.3 Permanent Impacts**

### **No Action / No Build**

There are very limited numbers of invasive species within the project area. The No Action / No Build alternative would not increase or decrease the abundance or diversity of invasive species. There will be no permanent impacts associated with invasive species from this alternative.

## **Alternative 4 and Alternative 5**

No invasive animal species would be introduced within the project area as a result of building either Alternative 4 or 5.

With the proposed minimization measures below in Section 3.19.5, there would be no permanent impacts resulting in an increase in abundance or diversity of invasive species.

### **3.19.4 Temporary impacts**

#### **No Action / No Build**

There are very limited numbers of invasive species within the project area. The No Action / No Build alternative would not increase or decrease the abundance or diversity of invasive species. There will be no temporary impacts associated with invasive species from this project.

## **Alternative 4 and Alternative 5**

With the proposed minimization measures identified below in Section 3.19.5, there would be no temporary impacts resulting in an increase in abundance or diversity of invasive species.

### **3.19.5 Avoidance, Minimization and Compensation Measures**

In compliance with the Executive Order on Invasive Species, EO 13112, and subsequent guidance from FHWA, the landscaping and erosion control included in the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be deployed should colonization occur.

The following measures will be implemented to mitigate the potential spread of invasive plant species from or into the project area:

- In consultation with the USFS, denuded soil will be landscaped with the Department's recommended seed mix of locally adapted species to preclude the invasion of noxious weeds. The use of site specific materials, which are adapted to local conditions, increases the likelihood that revegetation will be successful and maintains the genetic integrity of the local ecosystem;

- Seed purity shall be certified by planting seeds labeled under the California Food and Agricultural Code, or that have been tested within a year by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists;
- Before mobilizing to arrive at the site and before site departure, construction equipment will be cleaned of mud and other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds; and
- Trucks with loads carrying vegetation shall be covered and vegetative materials removed from the site shall be disposed of in accordance with all applicable laws and regulations.

## **3.20 Threatened and Endangered Species**

### **3.20.1 Regulatory Setting**

The primary federal law protecting threatened and endangered (T&E) species is the Federal Endangered Species Act (FESA): United States Code (USC), Section 1531, et seq. See also 50 CFR (Code of Federal Regulations) Section 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems on which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of formal consultation under Section 7 is a biological opinion and incidental take statement or jeopardy opinion.

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered and threatened species, and to develop appropriate mitigation planning to offset project caused losses of listed species populations and their essential habitats. The CDFG is responsible for implementing CESA. Section 2080 of the Fish and Game Code

prohibits "take" of any species determined to be threatened or endangered. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take that is incidental to otherwise lawful development projects. For these actions, an incidental take permit is issued by CDFG. On projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a consistency determination as part of the 2080.1 process.

The survey area for threatened and endangered species is the same as the BSA limits previously described in 3.18.2 and identified in Figure 3-39.

### 3.20.2 Affected Environment

Surveys were conducted to evaluate potential impacts of the proposed project to state and/or federally listed or proposed threatened or endangered species, as required by NEPA, FESA, CEQA, CESA and the National Forest Management Act.

State and federal T&E species and proposed T&E species surveyed for were identified using the USFWS species list, California Natural Diversity Database (CNDDDB), USFS regional sensitive species lists, and through consultation with the USFWS, USFS and CDFG (see Appendix K: USFWS September 11, 2003 species request letter and sensitive species lists). Table 3-30 identifies T&E species potentially occurring within the project vicinity.

Surveys were conducted to identify all plant and animal species of concern with potential to occur within or near the project's grading limits or that could be indirectly affected by the project (see Figure 3-39).

Pertinent documents reviewed include SBNF Land and Resource Management Plan (USFS, 1989) and the California Natural Diversity Database (CNDDDB 1991, 1992, 1993, 1997, 2001, 2002). Floral taxonomy used in this report is according to the nomenclature of Hickman (1993). Plant communities are based on the nomenclature of Horton (1960) and Holland (1986). Vertebrate taxonomy used in this report is according to the nomenclature of Stebbins (1985) for amphibians and reptiles, American Ornithologists' Union (1983, 1985, 1987, and 1989) for birds, and Jones *et al.* (1982) for mammals.

Sources used for identification of biological resources are as follows: **plants** - U.S. Fish and Wildlife Service (USFWS 1989, 2002), California Department of Fish and



Game (CDFG 1989, 2002), California Natural Diversity Data Base (CNDDDB 1991, 1992, and 1993, 1997, 2002), USFS (1989, 1997, 2002), and California Native Plant Society (CNPS—Smith and Berg 1988, 1994); **wildlife** - USFWS (1989, 2002), CNDDDB (1991, 1992, and 1993, 1997, 2001, 2002), CDFG (1986, 1988, 2002), USFS (1989, 1997, 2002), California Wildlife Habitat Relationships Database (CWHRD 1991), and Remsen (1978).

**Table 3-30: Sensitive Species Potentially Within Project Area**

Scientific Name	Common Name	Status	Specific Habitat Present/ Absent	Species Presence/ Absence	Rationale
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SE, FPD	P	P in Winter	Species is known to occur
<i>Charina bottae umbratica</i>	Southern Rubber Boa	ST, FSS	P	P	Historic sightings; Hard to survey for due to topography and secretive nature
<i>Rana muscosa</i>	Mountain Yellow-legged Frog	FE	P	A	Habitat in the project area is marginal; not found during surveys
<i>Empidonax trailii extimus</i>	Southwestern Willow Flycatcher	FE, SE	P	A	Habitat in project area is marginal; habitat downstream more suitable
<i>Taraxacum californicum</i>	California taraxacum	FE, FSS, CNPS1	P	A	Marginal habitat present, none found during surveys.
<i>Sidalcea Pedata</i>	Bird-footed Checkerbloom	FE, SE, FSS, CNPS1	P	A	Marginal habitat present, none found during surveys
<i>Thelypodium stenopetalum</i>	Slender-petaled mustard	FE, SE, FSS, CNPS1	P	A	Marginal habitat present, none found during surveys
<i>Poa atropurpurea</i>	San Bernardino bluegrass	FE, FSS, CNPS1	A	A	No Habitat in project area

Absent [A] means no further work needed. Present [P] means general habitat is present and species may be present.

FE= Federal Endangered

FT= Federal Threatened

FPD= Federal Proposed Delisting

FSS= Forest Service Sensitive

SE= State Endangered

ST= State Threatened

CNPS1= List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere

### 3.20.3 Biological Surveys Completed for the Project

#### Vegetation & Rare Plants

Biologists conducted surveys for plant species in 1991, 1993, 2001, 2002 and 2003. Surveys for plant species of concern consisted of walking transects of the BSA. The intent of these surveys was to identify all vascular plants. Because of the rugged

topography, walking parallel transects over the entire BSA was not feasible. The Bear Creek Canyon portion of the BSA was surveyed by walking or climbing back and forth across the slopes in directions dictated by topography. The canyon was surveyed from the base of Bear Valley Dam to approximately 450 meters (1500 feet) downstream. Portions of the project area along the lakeshore were covered by one walkover, extending approximately 260 meters (850 feet), upstream along the lakeshore and on each side of SR-18 and SR-38.

A number of plant species of concern that are indigenous to pebble plains and meadow areas occur in the vicinity of SR-18; however, since no pebble plains or meadow habitats occur within the Biological Study Area, USFS and the Department agreed through informal consultation that these plants are not present within the BSA. All species of vascular plants observed within the project area were identified to its genus. A list of all plant species encountered was compiled and is included in Appendix B of the 2003 Natural Environment Study Report (NESR).

The listed T&E and/or rare plants that were surveyed for include slender-petaled mustard (*Thelypodium stenopetalum*), ash-gray paintbrush (*Castilleja cinerea*) California taraxacum (*Taraxacum californicum*), San Bernardino mountain bluegrass (*Poa atropurpurea*), bird-footed checkerbloom (*Sidalcea pedata*), Bear Valley sandwort (*Arenaria ursina*), Parish's checkbloom (*Sidalcea hickmanii* ssp. *parishii*), southern mountain buckwheat (*Ergonum kennedyi* var. *austromontanum*), and various lichens.

All habitat types on the site were analyzed, and the potential for special-status plants to occur within these areas determined. Surveys were conducted during the flowering season in accordance with the current USFWS and CDFG protocols. Vegetation types were classified according to California Native Plant Society nomenclature (Sawyer and Keeler-Wolf 1995) and/or *The Jepson Manual: Higher Plants of California* (Hickman 1993) or other nomenclature as applicable. The names of all plants recognized in the field were recorded in field notes. Species not recognized were collected and identified later using botanical references. No listed and/or rare plants were observed during the surveys. Survey results can be found in Appendix B of the NESR.

Both Federal and State listed threatened and endangered plant and wildlife species with potential to occur within the BSA are provided in Table 3-30 and are discussed in detail below.

### Southern Rubber Boa

A biologist approved by the CDFG completed a focused survey for southern rubber boa in May 1993. This time period coincides with when southern rubber boas are most likely to be active near hibernation sites. Surveys were conducted between the hours of 7 a.m. and 6 p.m. Weather conditions at the time of the surveys were generally mild during the day. Because of the spring timing of the surveys, night and early morning temperatures prior to the surveys approached 4.4 degrees Celsius (40 degrees Fahrenheit). Air temperatures during the surveys ranged from approximately 10 to 24 degrees Celsius (50 to 75 degrees Fahrenheit).

Southern rubber boa surveys consisted of walking the proposed alignments, examining the habitats present, and searching for rubber boas in rock crevices and under loose surface rocks, logs and vegetation. The surveys concentrated on south-facing slopes, but all impact areas were surveyed. Survey efforts were intensified near rock outcrops and rockslides that receive full sun at least part of the day. Search methods included examining deep vertical and horizontal rock crevices in large granite outcrops. Because the interiors of deep crevices are typically quite dark and difficult to see without illumination, reflected sunlight (using a hand mirror) and a flashlight were used to inspect the deepest crevices for boas. All logs, rocks, and debris disturbed during the survey were returned to their original position, and disturbance of surface litter and rocks was kept to a minimum.

During surveys for the rubber boa, potential habitat for other wildlife species of concern was also evaluated. The evaluation was based on the type and quality of the habitats present, known habitat requirements, and natural history of these species. No southern rubber boas were identified within the BSA. Because of this snake's secretive nature, detection is difficult and the CDFG no longer requires surveys to determine their presence. Currently, CDFG presumes southern rubber boa presence on projects impacting their potential habitat within their known range and requires avoidance and minimization measures on projects that would potentially impact their habitat. Southern rubber boa survey results are provided in Appendix D of the NESR.

### Southwestern Willow Flycatcher

In accordance with the accepted protocol for southwestern willow flycatcher surveys (Sogge et al. 1997, and additional guidance 2000), the site was surveyed five times by ornithological consultants qualified to survey for Southwestern willow flycatcher (Federal Endangered Species Permit numbers TE836517-2, TE804203-4 and

TE831910-1) in 2001. The protocol requires the first survey be performed between May 15 and May 31, the second between June 1 and June 21, and three additional site visits between June 22 and July 17.

Surveys consisted of moving through the habitat while playing tapes of southwestern willow flycatcher vocalizations, a method consistent with protocol. The protocol requires vocalizations be played every 20-30 meters (60-90 feet) through the habitat. Bear Creek was surveyed from the dam to approximately 0.4 kilometer (0.25 mile) downstream of the dam. All bird species detected during the surveys were recorded in field notes.

No southwestern willow flycatchers were observed during the surveys. Survey results are provided in Appendix E of the NESR.

#### Mountain Yellow-legged Frog

In 2001, protocol survey for the mountain yellow-legged frog was performed by slowly walking along and through the stream searching for tadpoles and adult frogs. Field notes were taken during each survey, and consisted of the species observed, habitat conditions, and weather variables.

Prior to conducting surveys, a review of pertinent literature was performed to determine whether the species had previously been reported in the project vicinity. This included a review of the CNDDDB, voucher specimen records from the Natural History Museum of Los Angeles County, and consultation with local herpetologists and biologists familiar with the species.

USFWS approved herpetological consultants conducted the focused surveys. No mountain yellow legged frogs were observed and the habitat was determined unsuitable for the species. Survey results are provided in Appendix F of the NESR, bound separately.

#### Bald Eagle & Spotted Owl

The USFS continually monitors both wintering bald eagle and spotted owl populations within the forest. Forest Service occurrence records and habitat delineation data were used to determine the presence of bald eagles and spotted owls within the BSA. Eagle perch trees and owl nesting locations were counted and locations recorded. No additional surveys for these species were required based on the annual survey data and mapping compiled/completed by the USFS.

### **3.20.3.1 Federal and State Listed Threatened and Endangered Plant Species**

#### California taraxacum (*Taraxacum californicum*):

California taraxacum (*Taraxacum californicum*) is a federally endangered species endemic to the northeastern San Bernardino Mountains. This species is found at elevations between 1,620 and 2,750 meters (5,300 and 9,000 feet) and typically flowers between May and July.

Although some marginal habitat for this species occurs in the BSA, no California taraxacums were found during surveys. The BSA is several kilometers from the closest known occurrence. Multiple surveys within the BSA failed to locate this species within the BSA.

#### Bird-footed checkerbloom (*Sidalcea Pedata*):

Bird-footed checkerbloom (*Sidalcea Pedata*) is a federally and state listed endangered species. This perennial is endemic to montane wet meadows within the Big Bear Valley of the San Bernardino Mountains. The species grows at elevations between 1,830 and 2,320 meters (6,000 and 7,600 feet) and typically flowers between May and July. A draft recovery plan for this species was completed by the USFWS in 1998. The final recovery plan for the species was adopted in 2002.

Some marginal habitat for this species occurs within the BSA. This species does occur in close proximity to the BSA in the area known as Ski Beach; however, multiple surveys in the BSA have failed to locate this species.

#### Slender-petaled mustard (*Thelypodium stenopetalum*):

Slender-petaled mustard (*Thelypodium stenopetalum*) is a federally and state listed endangered species endemic to the San Bernardino Mountains. The species grows at elevations between 2,050 and 2,350 meters (6,700 and 7,600 feet) and typically flowers between June and July.

Although some marginal habitat for this species occurs within the BSA, no mustards were found during surveys. The BSA is several kilometers from the closest known occurrence. Multiple surveys of the BSA failed to locate this species.

San Bernardino bluegrass (*Poa atropurpurea*):

San Bernardino bluegrass (*Poa atropurpurea*) is a federally endangered species found in the San Bernardino Mountains and the Palomar and Laguna Mountains of San Diego County. This perennial grass occupies the edges of wet meadows where there is less competition from more mesic species. This species grows at elevations between 1,340 and 2,460 meters (4,400 and 8,100 feet) and typically flowers between May and June.

The San Bernardino bluegrass was not found within the BSA during multiple surveys. The closest known occurrence is several kilometers (miles) from the BSA.

**3.20.3.2 Federal and State Listed Threatened and Endangered Wildlife Species**

The southwestern willow flycatcher (*Empidonax traillii extimus*):

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a small, brownish-olive bird that was formerly considered a common summer resident in Southern California's lowland willow thickets and in mountain canyons (Garrett and Dunn 1981). Following the large-scale invasion of the coastal lowlands by brown-headed cowbirds in the 1920s, along with loss of willow riparian habitat, this subspecies was nearly extirpated from southern California. The CDFG listed the willow flycatcher (and all its subspecies) as endangered in 1990. The subspecies *E. t. extimus* (southwestern willow flycatcher) was listed as endangered by the USFWS in February 1995.

A final determination of critical habitat for the southwest willow flycatcher was originally made in July 1997. Due to the May 11, 2001 lawsuit, the 10<sup>th</sup> Circuit Court of Appeals set aside the previous ruling on critical habitat citing a faulty economic analysis. The USFWS was instructed by the U.S. District Court of New Mexico to reanalyze critical habitat by September 2004 and to publish the final proposal by September 2005. The proposed critical habitat now includes Bear Creek, which previously was not identified in the original critical habitat determination. The project site is within proposed critical habitat for the southwestern willow flycatcher as of October 2004. Previously, the nearest designated critical habitat was along the Santa Ana River, in Riverside County.

If the project area is identified as critical habitat within the final determination, the proposed project may have an effect on the critical habitat.



Habitat at the site is suitable for the southwestern willow flycatcher. Descriptions of occupied flycatcher habitat invariably include factors such as dense understory, surface water or saturated soil, and dense vegetation interspersed with small openings. Sogge et al. (1997) states that flycatchers have not been found nesting in narrow, linear riparian habitats less than 10 meters (30 feet) wide. However, a nesting pair was located in 2001 along Metcalf Creek (south shore of Big Bear Lake) in a willow thicket averaging scarcely wider than 10 meters (30 feet).

No southwestern willow flycatchers were observed during the surveys within the BSA.

The mountain yellow-legged frog (*Rana boyii*):

The mountain yellow-legged frog (*Rana boyii*) was listed as federally endangered on July 2, 2002. According to the Service, this listing applies to the populations south of the Tehachapi Mountains. This medium-sized diurnal frog is highly variable in color. Dorsal patterns range from a few large distinct dark spots, to a myriad of smaller “freckling,” to irregular lichen-like patches, or indistinct dark reticulation (Jennings and Hayes 1994). In southern California it is found exclusively in rocky stream courses with exposure to direct and filtered sunlight (Stebbins 1985). Its known elevational range within southern California extends from 370 meters (1,200 feet) to approximately 2,300 meters (7,500 feet) (Jennings and Hayes 1994).

No amphibians, including the mountain yellowed-legged frog were observed during the focused surveys conducted for this project. No suitable habitat occurs within the proposed project area.

The closest reported historic locations of mountain yellowed-legged frog are from Siberia Creek located approximately 3 kilometers (2 miles) south and Caribou Creek located approximately 11 kilometers (7 miles) northeast of the project site (Stephenson and Calarone 1999, K. Beaman pers. com.). The closest existing population of the mountain yellowed-legged frog is in City Creek located approximately 24 kilometers (15 miles) southwest of the project site.

The bald eagle (*Haliaeetus leucocephalus*):

The bald eagle (*Haliaeetus leucocephalus*) is a federally listed threatened and a State listed endangered species. Eagles are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. On July 6, 1999 the USFWS

published a proposed rule to remove the bald eagle from the federal list of endangered and threatened species in the lower 48 states. The delisting process has not been finalized; however, delisting of this species would not change the proposed conservation measures for the bald eagle within this document. The CDFG classifies the bald eagle as a fully-protected species and allows no “take” of the species within the State of California.

Bald eagles occur in a variety of habitats. Key habitat components are large bodies of water or rivers with abundant fish and large trees or snags with heavy limbs or broken tops. Dense stands of conifers are used for communal roosts. Winter roosts may be 16 to 19 kilometers (10 to 12 miles) from feeding areas. Nests are typically located within 1.5 kilometers (1 mile) of permanent water. Nest stands may have canopy cover of less than 40%, so long as the nest itself is shaded.

Bald eagles are present in the Big Bear area between October 1 and April 30 of each year. The wintering population of bald eagles in the San Bernardino mountains has been studied by the USFS and is currently considered to be one population of birds that moves frequently between the different mountain lakes (Lake Arrowhead, Silverwood Lake State recreation Area, Green Valley Lake, Big Bear Lake, Baldwin Lake, etc.). There were two nesting attempts in the San Bernardino Mountains in the early 1990s near Silverwood Lake and Lake Arrowhead. Suitable nesting habitat occurs for this species within and adjacent to the project area though no nesting within the Big Bear Valley is known from recent history.

U.S. Forest Service occurrence records and habitat delineation data were used to determine the presence of bald eagles within the BSA. Perch trees that may be used by bald eagles were counted and locations recorded.

The southern rubber boa (*Charina bottae umbratica*):

The southern rubber boa (*Charina bottae umbratica*) is a state listed threatened species, and a USFS sensitive species. It is highly secretive snake that occurs in grasslands, broken chaparral and mixed conifer/oak forests and woodlands with surface litter and rock outcrops. The rubber boa prefers moist conditions and spends most of the time under surface debris, beneath rocks and rotting logs, under the bark of dead trees or within the crevices of large boulders and rock outcrops (Stebbins 1985). At high elevations, it over-winters underground in deep rock crevices, beneath talus piles, or possibly in mammal burrows. Sites with a southern exposure are favored for wintering locations because the sun quickly warms them in the spring. As

temperatures rise in the late spring and surface conditions become drier, rubber boas typically migrate to moist draws and canyons. The boas return to winter dens in the late summer and fall. The rubber boa appears to become active when the average daily temperature of its habitat ranges from 18 to 21 degrees Celsius (64 to 70 degrees Fahrenheit); however, it is most active on days with overcast skies and on nights with high humidity (Keasler 1981). During daylight hours in the late spring and summer it is usually found hidden beneath logs, flat rocks and surface litter or within the burrows of small mammals.

The southern rubber boa occurs in pocket populations scattered throughout the San Bernardino mountains within the forest. One historical observance was recorded within, or just outside, the northwestern extreme boundary of the project area (Stewart 1991), and there are at least two records of the snake within 0.4 kilometer (0.25 mile) west of the Big Bear Dam (CNDDDB 1991, USFS 1991). The southern rubber boa appears to be tolerant of low-level development, such as widely separated cabins (Stewart 1991). Because of its secretive nature and that it is active on the surface at dawn or dusk, local residents rarely report seeing it.

No southern rubber boa or any other snake species was found during focused surveys; however, there is suitable species habitat within the BSA. Because there are historical occurrences nearby, the presence of habitat within the BSA and because of the snake's highly secretive nature, the species may be present within the BSA. Thus, negative survey results do not preclude the potential for this species from occurring in the area.

#### **3.20.4 Permanent Impacts**

A summary of permanent impacts to listed and proposed federal and state listed plant and wildlife species are provided below in Table 3-31. The permanent impacts are a result of new transportation elements associated with the proposed build alternatives (retaining walls/cut-slopes, bridge abutments/footings, roadway, etc.). A discussion of these impacts is provided below in Section 3.20.4.1 and 3.20.4.2.

**Table 3-31: Permanent Impacts - Federal and State Listed Threatened and Endangered Plants and Wildlife**

Species	No Action/ No build	Alternative 4	Alternative 5
Plants			
San Bernardino bluegrass	No Permanent Impacts		
California taraxacum			
Slender-petaled mustard			
Bird-footed checkerbloom			
Wildlife			
Mountain yellow-legged frog	No Permanent Impact	No Permanent Impact	No Permanent Impact
Southwestern willow flycatcher	No Permanent Impact	No Permanent Impact	No Permanent Impact
Bald eagle	No Permanent Impact	4 Perch Trees	11 Perch Trees
Southern rubber boa habitat	No Permanent Impact	0.06 hectare (0.15 acre)	0.2 hectare (0.5 acre)

#### **3.20.4.1 Federal and State Listed Threatened and Endangered Plant Species**

##### **No Action / No Build, Alternative 4 & Alternative 5**

There would be no permanent impacts to any listed federal or state threatened or endangered plant species from these alternatives. No listed threatened or endangered plant species were observed within the BSA during focused surveys.

#### **3.20.4.2 Federal and State Listed Threatened and Endangered Wildlife Species**

##### **Southwestern Willow Flycatcher and Mountain Yellow Legged Frog**

##### **No Action/No Build Alternative and Alternative 4**

Based on informal consultation with the USFWS, no permanent impacts to southwestern willow flycatcher or mountain yellow-legged frog are anticipated with these alternatives. There are no construction impacts associated with the No Action/No Build alternative and there is no suitable habitat for either of these species within the construction impact area for Alternative 4.

### **Alternative 5**

Based on surveys completed by the Department, no southwestern willow flycatchers or mountain yellow legged frogs were found within the BSA during focused surveys. All permanent impacts associated with the new bridge construction would be located above the riparian vegetation and the creek bottom. No permanent impacts associated with the construction of this alternative to southwestern willow flycatcher or mountain yellow-legged are anticipated.

### **Bald Eagle**

#### **No Action/No Build**

There would be no permanent impacts to bald eagles associated with this alternative. The bald eagle would not be impacted by this alternative.

### **Alternative 4**

This alternative would permanently impact 4 perch trees. These trees would be removed during construction of the proposed alternative. The number of perch trees to be removed is a “best estimate” based on information available at this time. Permanent impacts to perch trees will be updated within the FEIS/R.

### **Alternative 5**

This alternative would permanently impact 11 perch trees. These trees would be removed during construction of the proposed alternative. The number of perch trees to be removed is a “best estimate” based on information available at this time. Permanent impacts to perch trees will be updated within the FEIS/R.

### **Southern Rubber Boa**

#### **No Action/No Build**

There are no permanent impacts associated with this alternative. The southern rubber boa would not be impacted by this alternative.

#### Alternative 4

This alternative will affect approximately 0.06 hectare (0.15 acre) of southern rubber boa habitat due to permanent conversion of habitat at proposed retaining wall locations and new roadway locations.

#### Alternative 5

This alternative will affect approximately 0.2 hectare (0.5 acre) of southern rubber boa habitat due to permanent conversion of habitat at retaining wall locations and at new roadways.

### 3.20.5 Temporary Impacts

All impacts not considered as permanent impacts are temporary and are related to construction activities (equipment storage, vegetation clearing, excavation/blasting, traffic, construction noise, etc.). A summary of temporary impacts to listed Federal and State listed threatened and endangered plant and wildlife species are provided below in Table 3-32. A discussion of these impacts is provided below in section 3.21.5.1 and 3.21.5.2.

**Table 3-32: Temporary Impacts - Federal and State Listed Threatened and Endangered Plants and Wildlife**

Species	No Action/ No build	Alternative 4	Alternative 5
Plants			
San Bernardino bluegrass	No Temporary Impact		
California taraxacum			
Slender-petaled mustard			
Bird-footed checkerbloom			
Wildlife			
Mountain yellow-legged frog	No Temporary Impact	No Temporary Impact	No Temporary Impact
Southwestern willow flycatcher	No Temporary Impact	No Temporary Impact	No Temporary Impact
Bald eagle	No Temporary Impact	9 Perch Trees	3 Perch Trees
Southern rubber boa habitat	No Temporary Impact	0.1 hectare (0.3 acre)	1.3 hectares (3.2 acre)



### **3.20.5.1 Federal and State Listed Threatened and Endangered Plant Species**

#### **No Action/No Build and Alternative 4 and Alternative 5**

There would be no temporary impacts to any listed federal or state threatened or endangered plant species from these alternatives. No listed federal or state threatened or endangered plant species were observed within the BSA during focused surveys.

### **3.20.5.2 Federal and State Listed Threatened and Endangered Wildlife Species**

#### **Southwestern Willow Flycatcher and Yellow-legged Frog**

##### **No Action /No Build and Alternative 4**

There would be no temporary impacts to the southwestern willow flycatcher or the mountain yellow legged frog associated with these alternatives. There are no construction impacts associated with the No Action/No Build Alternative, and there is no suitable habitat for these species within the construction impact area for Alternative 4.

##### **Alternative 5**

Temporary impacts to southwestern willow flycatcher with this alternative are unlikely because the habitat is marginal and the species was not found during surveys; however this alternative would temporarily affect the riparian area adjacent to the creek. All of the temporarily impacted areas would be within the construction impact area and associated with vegetation clearing for construction of the proposed project. Since Alternative 5 is designed to span the riparian habitat and since the temporarily impacted areas will be re-vegetated, this alternative would not adversely modify potential critical habitat per informal conversations with the USFWS.

#### **Bald Eagle**

##### **Alternatives 4 and 5**

It is estimated that 9 perch trees adjacent to the proposed alignment of Alternative 4 and 3 perch trees adjacent to the proposed alignment of Alternative 5 may be temporarily impacted by construction activities. The number of perch trees temporarily impacted is a “best estimate” based on information available at this time.

Temporary impacts from construction and traffic noise are difficult to assess. Currently, wintering eagles at Big Bear have been observed perched in trees along the roadside. Generally, favored perch areas are away from roads with high traffic volumes, such as SR-18 and SR-38, but the connection between high traffic and perch avoidance remains unproven. Traffic does not seem to cause the eagles to leave their perches; however, people walking under or near the perch trees often cause the birds to leave. The increased volume and intensity of noise during construction may alter bald eagle behavior.

A night roost area located on the south side of Bear Creek is one of the most important known roost sites in the San Bernardino Mountains. Eagles use this site, as well as the entire south slope of Bear Creek, during stormy weather. Noise and movement of people and equipment during construction activities could affect the utilization of these sites, as well as the area along the lakeshore near the dam.

Impacts to foraging and roosting activities may occur due to noise and increased human activities associated with the construction of the proposed alternatives. Construction activities may interfere with normal flight patterns to and from the night roost on the slopes of Bear Creek. Typically, eagles fly out of the roost early in the morning toward the lake where they spend the day foraging for fish and waterfowl. They return to the night roost site late in the day. High levels of human activity and construction activity within the direct flight line may result in disturbance and abandonment. However, construction will not occur at night or during inclement weather; thus, no behavior changes are expected.

### **Southern Rubber Boa**

#### **No Action/No Build**

There are no temporary impacts associated with this alternative. The southern rubber boa would not be impacted by this alternative.

#### **Alternatives 4 and 5**

Southern rubber boa habitat would be temporarily impacted by construction of either alternative. Southern rubber boas would be excluded from the construction impact areas during the construction operations (3 to 4 years). There is approximately 0.1 hectare (0.3 acre) and 1.3 hectares (3.2 acres) of southern rubber boa habitat that would be temporarily impacted within the construction impact areas of Alternatives 4

and 5, respectively. These areas would be restored subsequent to construction of either alternative.

### **3.20.6 Avoidance, Minimization and Compensation Measures**

Impacts to all listed federal and state threatened and endangered species are minimized by the proposed build alternatives. Both Alternatives 4 and 5 incorporate the maximum amount of the existing roadway, and minimize the amount of new roadway associated with their respective alignments. Proposed measures to avoid and minimize impacts to each listed species potentially impacted by the proposed project is discussed below.

#### **Southwestern willow flycatcher**

##### **Alternative 5 Only**

- A 12-meter (40-foot) environmentally sensitive area (ESA), centered on Bear Creek, would be designated on the plans; however, the entire construction impact area will be fenced to exclude all construction activities from exceeding the limits identified within this document and to minimize impacts to the riparian areas outside of the designated construction impact areas (see proposed Alternative 5 construction impact area Figure 2-12);
- To minimize the potential of a southwestern willow flycatcher being impacted by construction, a pre-construction survey will be conducted to protocol standards the year before ground disturbance activities are to begin. The survey will be conducted in early summer (starting in June) to determine potential presence and nest locations. If anticipated construction noise impacts are 60 dBA or greater at the nest location or if nests are located within 200 meters (660 feet) of any of the construction impact areas (staging areas, storage sites and batch plants, etc.), the Department will contact USFWS, CDFG, and USFS to determine if additional formal/informal consultation and/or additional avoidance, minimization and or compensation measures will be required. Protocol surveys will be conducted prior to the start of construction and each survey season until either construction is complete or the species is found within the BSA.

## **Bald Eagle**

### **Alternative 4 and 5**

- To avoid direct disturbance to eagles, the potential eagle perches will be cut down during the summer months. The construction impact area has also been minimized and will be fenced to prevent the contractor's personnel and equipment from encroaching into the Bear Creek night roost and other potential perch areas adjacent to the construction impact areas;
- To minimize disturbance, the following measures will be implemented during the period between November 15th and April 1st:
  - 1) Restricting all construction activities to daylight hours (½ hour after sunrise and ½ hour before sunset). This includes work at staging and storage areas; and
  - 2) Curtailing construction during inclement weather.
- Prior to cutting any trees that have been marked for removal, a USFWS and/or USFS biologist or biologist approved by the USFWS/USFS must inspect the trees to determine its potential to function as an eagle perch tree. For each perch tree removed, two perches will be created by trimming the top out of existing mature trees to create new "perching windows."
- To minimize impacts to habitat where eagles perch during inclement weather, environmentally sensitive areas would be fenced on the south side of Bear Creek. If bald eagles begin nesting within the Big Bear area prior to completion of this project, informal/formal consultation with USFWS and/or CDFG will be required to determine appropriate avoidance, minimization and/or compensation measures.

## **Southern rubber boa**

### **Alternatives 4 and 5**

- Training would be provided to all of the contractor's personnel on identification, prohibition of handling and harassment or removal of southern rubber boa. If the snakes are encountered during construction, activities in the location must cease until the snake leaves the area or a qualified biologist relocates the snake outside

of the construction area. The Resident Engineer will notify the Department biologist of any sightings of snakes during construction.

- An ESA will be designated and delineated cooperatively with the USFS, CDFG and Department biologists within the southern rubber boa's habitat. To minimize loss of the rubber boas, prior to ground disturbance the construction impact areas will be "cleared" of rubber boas by a qualified biologist, and then fenced to prevent boa re-colonization during construction. The fence should be 600-millimeter (2 feet) high 6-millimeter (0.25 inch) mesh, and where feasible buried 150 millimeters (6 inches) below ground or bent with debris placed on top. Once the area has been fenced, it should be resurveyed to ensure that no boas are within the enclosure. The work site should be raked lightly and kept as clear as possible to permit better ground visibility. Material raked and gathered should be stockpiled within the fenced area and re-spread after project completion. Subsequent to construction the exclusion fence will be removed.
- During rock excavation, a biologist authorized to handle the southern rubber boa and experienced in handling other types of snakes will be on site to move all snakes that are found to safe locations outside of the construction impact area; however, it is possible that some snakes will unavoidably be killed or injured by the construction activities, especially those under large rocks or on talus slopes.
- Southern rubber boa habitat will be permanently impacted by both of the proposed build alternatives. To mitigate for the permanent loss of southern rubber boa habitat, replacement habitat will be acquired at a ratio of 3 to 1. Permanent impacts to southern rubber boa habitat are estimated to be 0.06 hectare (0.15 acre) and 0.2 hectare (0.5 acres) for Alternatives 4 and 5, respectively. Alternative 4 and Alternative 5 both would require the acquisition of 0.18 hectare (0.45 acres) and 0.6 hectare (1.5 acres), respectively. Subsequent to purchasing the replacement habitat, the land will be deeded over to the USFS for management in perpetuity.

### **3.20.7 Indirect Biological Impacts**

A habitat-based approach was considered for analysis of indirect biological impacts associated with the construction of the proposed alternatives. Factors considered for this analysis include the degradation of habitat adjacent to the highway as a result of vehicle traffic noise, proximity effects of potentially altering the mobility and behavior patterns of wildlife species within the area and potential effects of habitat isolation/fragmentation on wildlife corridors.

For sensitive wildlife, proximity effects were considered to extend approximately 30 meters (100 feet) on either side of the edge of pavement. The grading within these areas is included within the footprint of the construction impact areas. In the absence of good empirical data on indirect proximity effects, this distance was chosen based on the reasonable assumption that most effects would be reduced to an inconsequential level beyond this distance. Indirect impacts include both constant levels and instantaneous fluctuations of traffic related noise, visual perception of traffic, increase in dust and debris, potential over spray of highway landscape herbicides, and other human activity (non-natural fires, foot traffic to disabled vehicles and Bear Creek).

## **3.21 The Relationship Between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity**

The construction of Alternative 4 or 5 would have no significant effect on the long-term productivity of the area, as it would not facilitate any other urban development within the project limits. The project site is located entirely on public land administered by the USFS, which regulates new development within SBNF. The scenic quality, as well as the character and setting associated with the study area, would be permanently changed as a result of the bridge replacement project and all of its components described within this document. Long-term benefits of the project include: improved traffic operations during peak travel periods, increased safety for facility users and would allow the BBMWD to complete spillway and outlet works improvements to guard against potential lakeshore flooding.

Short-term project costs include the commitment of substantial financial and material resources and associated construction impacts associated with either of the build alternatives. A short-term benefit of the proposed project would be the creation of construction-related jobs.



Construction of the proposed project would result in short-term environmental impacts that may include:

- Water quality impacts;
- Removal of special status plant and wildlife habitat;
- Removal of vegetation; and
- Changes in the visual environment.

However, the proposed project would serve as a long-term and dependable entrance to the Big Bear Lake area from the Los Angeles basin for both commute and recreational traffic.

### **3.22 Any Irreversible and Irretrievable Commitments of Resources Which Would be Involved in the Proposed Action**

Implementation of the proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. Land used for the construction of the proposed facility is considered an irreversible commitment during the time period the land is used for a highway facility. However, if a greater need arises for the land use or if the highway facility is no longer needed, the land could be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material would be used during the proposed construction project. Additionally, large amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would have no adverse effect upon continued availability of these resources. Any construction would also require a substantial one-time expenditure of both state and federal funds, which are not retrievable.

The commitment of these resources is based on the concept that residents in the immediate area, state, and region would benefit from the improved quality of the transportation facility. These benefits would consist of improved accessibility, route continuity and safety, and continued access and availability of quality services. These benefits are anticipated to outweigh the commitment of these resources.

### **3.23 Unavoidable Adverse Impacts**

As discussed in Chapter 3, implementation of the build alternatives could result in potentially adverse impacts to visual and cultural resources, as well as to biological resources. Impacts to biological resources would be minimized through the avoidance, minimization and compensation measures previously discussed in Chapter 3. The visual and cultural impacts associated with the proposed project cannot be avoided or fully mitigated and therefore will result in unavoidable adverse impacts; however, these impacts will be minimized to the maximum extent practicable.



# **Chapter 4**

## **Cumulative Impacts**

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### **4.1 Regulatory Setting**

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions when considered in combination with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over time.

Cumulative impacts to resources in the project area could result from residential, commercial, industrial, and highway development. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The NEPA definition of cumulative impacts can be found in 40 CFR, Section 1508.7 of the CEQ regulations. The CEQA definition of cumulative impacts can be found in Section 15355 of the CEQA Guidelines. CEQA Guidelines, Section 15130 describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts.

### **4.2 Affected Environment**

The last major projects to occur within the project limits were completed by the Big Bear Municipal Water District and associated with the Big Bear Lake Dam. These projects included the Big Bear Dam Gravity Infilling project completed in 1988 and spillway gate repairs in 2003. With the exception of these projects, no other projects have occurred within the project limits; however, major projects proposed by others (see Summary: S.2) are also included within this cumulative impacts analysis see (Table 4-1). Additionally, the Department's projects are identified within the 10-year State Highway Operations and Protection Program (SHOPP) and the State Transportation Improvement Plan (STIP). SHOPP projects are mainly for the

enhancement of safety and operational characteristics of the State Highway system. STIP projects are mainly projects intended for new improvements that generally add traffic-carrying capacity to the existing highway system. The Department's route concepts for SR-18 and SR-38 are to perform maintenance and operational improvements only; therefore, current and future projects will be limited to the same time frame as the SHOPP program. At this time, there are no STIP projects planned or programmed for the project vicinity around Big Bear Lake. Additionally, in the most recent SHOPP, there are no other projects identified within the project vicinity. However, construction on SR-18 and SR-38 outside of the project vicinity may occur within the construction time period for the proposed project.

Although the Department has established a ten-year SHOPP plan for highway rehabilitation and other maintenance-type projects, it is difficult to determine with certainty the specific projects which are to be funded within a given time period. This is because of: 1) funding ability and limitations are not always predictable and highway needs fluctuate within the ten-year period; and 2) unplanned and unfunded projects with greater need may replace existing planned and funded projects due to variation in statewide and local priorities. It is reasonable to expect that within the construction period for the proposed project one or more SHOPP projects will be awarded for construction on SR-18 and/or SR-38 within the project vicinity; however, none are planned or programmed at this time. Table 4-1 identifies the agency as well as their projects that were considered within this cumulative impacts analysis.

Projects within Table 4-1 were identified through consultation with various staff, departmental functional groups and databases from the Department, USFS – San Bernardino National Forest Big Bear Ranger Station and Supervisors Office, city of Big Bear Lake, San Bernardino County, BBMWD, the State Office of Planning and Research, San Bernardino Associated Governments, and Southern California Association of Governments.

No other Department projects were identified and the proposed project is not included in the list of projects in Table 4-1.

**Table 4-1: Projects Considered In Cumulative Impact Analysis**

Project Name	Location/ Description	Status
<b>California Department of Transportation</b>		
None <sup>1</sup>	NA	NA
<b>Federal Highway Administration</b>		
Rim of the World Trail	Construction of 64 miles of non-motorized trail from Grays Peak Trailhead in Fawnskin to Lake Arrowhead. It would be a backbone trail across the top of the San Bernardino Mountain.	Preliminary Planning
<b>County of San Bernardino</b>		
Tract 12217 (Marina Point Development)	In Fawnskin: 132-unit condominium complex on approximately 12.5 acres plus approximately 15.7 acres of off-site lake improvements.	Recorded, but not constructed. Implementation pending legal challenge
Tract 1546 (Kelsch)	In Fawnskin: Single-Family Residential, minimum 20,000 square foot lots to establish 62 residential lots. Five lettered lots for water tank, interior road and open space conservation. Total of 74 acres	Preliminary Tract Map, Not Recorded
Moon Camp	In Fawnskin: The project proposes a 95-lot residential subdivision on 62.43 acres Along the north shore of Big Bear Lake, in the unincorporated community of Fawnskin. The proposal includes the realignment of North Shore Drive, and a boat dock for 100 slips	Preliminary Tract Map, Not Recorded
Relocation of Moon Ridge Zoo from South Shore	Animal Park on a 25 acre lot, develop 5 to 7 acres to house approximately 150 animals and include; educational facilities, hospital, concession stands, and promissory	Not Recorded
<b>Big Bear Municipal Water District</b>		
Gravity Infilling	Phase 1: Bring Big Bear Dam up to current seismic safety standards for high risk structures	Covered in 1987 EIR; Completed 1988
Service Spillway Gate Repair	Phase 2A: Service Spillway Gate Repair	Covered in 1987 EIR; Completed 2003
Auxiliary Spillway Replacement	Phase 2B: Installation of Auxiliary Spillways	Covered in 1987 EIR; Pending completion of the Big Bear Bridge Replacement Project
<b>U.S. Forest Service: Forest Health Projects</b>		
Valley of Enchantment Forest Health and Shaded Fuelbreak Project	Overly dense and dead/dying vegetation along the private land boundary between private land and National Forest lands in the Crestline/Cedar Pines Park area would be removed.	Under Environmental & Public Review
Rim Shaded Fuelbreak and Forest Health Project	Overly dense and dead/dying vegetation along private land and National Forest lands boundary in the Lake Arrowhead/Twin Peaks/Crestline areas would be removed.	Under Environmental & Public Review
Running Springs Shaded Fuelbreak and Small Fuels Reduction Project	In areas accessible by road, overly dense and dead/dying vegetation near Running Springs would be removed. Small trees and shrubs would be cut, piled and burned (when weather conditions permit) in areas not accessible by roads.	Under Environmental & Public Review
<b>Continued Next Page</b>		



Project Name	Location/ Description	Status
Snow Summit / Bear Mountain Forest Health Project	Most dead and/or dying trees would be removed from National Forest lands at the Snow Summit and Bear Mountain Resorts to reduce fire danger. Thinning of generally smaller green trees in the tree islands would also be done to improve forest health.	Under Environmental & Public Review
Skyline Shaded Fuelbreak Project	Overly dense vegetation by removing selected shrubs and generally smaller trees along Forest system road 2N10, south of Big Bear Lake, would be removed.	Under Environmental & Public Review
South Big Bear Shaded Fuelbreak Project	Overly dense and dead/dying vegetation along the private land boundary up to 800 feet into National Forest lands on the south side of Big Bear Valley would be removed to create a community protection zone.	Under Environmental & Public Review
Mineral Withdrawal	The USFS is currently preparing an Environmental Assessment for withdrawing from mineral entry about 18,200 hectares (45,000-acres) of National Forest land around the Big Bear area. If approved, this proposal will help reduce impacts to many species of animals and their habitats by eliminating prospecting and mining for a period of 20 years.	Under Environmental & Public Review
Unclassified Road Restoration Project	"unclassified road restoration project" would close and restore habitat on approximately 160 kilometers (100 miles) of unauthorized roads within the Mountain Top Ranger District, resulting in improved habitats and lower disturbance levels for many of these species.	Under Environmental & Public Review
Multiple: USFS, San Bernardino County, State of California		
Bark Beetle Tree Eradication Project	Many large and small trees on the San Bernardino National Forest are dying due to a 4-year drought. Trees are weak and susceptible to beetle infestation because of the lack of water. Thinning (logging) is happening on both private property and San Bernardino National Forest land. Thinning of the trees will improve the forest health and reduce the fire hazard to the local communities by removing large, dense stands of dead trees.	Ongoing in accordance with Federal and State Emergency Declarations

1. No SHOPP or STIP projects within the project vicinity are planned or programmed.

### 4.3 Cumulative Impacts

Even though each of the projects identified in Table 4-1 have individual avoidance, minimization and or mitigation measures, some of the impacts resulting from these projects combined with the implementation of the proposed build alternatives, as identified in Chapter 3, may cumulatively contribute to the degradation of the impacted resources. Resources impacted by the proposed project that may be cumulatively considerable are identified in Sections 4.3.1- 4.3.5. These cumulative impact discussions also define areas that the cumulative impact analysis for the resources was based on.

### **4.3.1 Visual/Aesthetics**

#### **4.3.1.1 Visual/Aesthetes Cumulative Impact Area**

The proposed project will generally impact the relatively undisturbed open space of the forest landscape adjacent to Big Bear Lake. The impact area would follow the boundaries of USFS land within Bear Valley. The city of Big Bear Lake, as well as other local more urbanized environments of San Bernardino County unincorporated areas (Fawnskin and Big Bear City), are outside of the impact area. Little to no development has occurred within the impact area other than USFS recreational residences and Lake/Lakeshore recreational opportunities (i.e. boat ramps, walking path, etc.).

#### **4.3.1.2 Cumulative Impact Analysis**

The proposed project and projects covered under the 1987 Bear Valley Dam Rehabilitation Project EIR are the only projects within the visual/aesthetic cumulative impact area. Subsequent to the seismic upgrade, all areas were revegetated and are now nearly indistinguishable from the undisturbed areas. The BBMWD service spillway project did not impact existing vegetation or rock outcroppings characteristic to the undeveloped areas within the San Bernardino National Forest. Areas disturbed by the construction of the proposed build alternatives would also be revegetated subsequent to construction (see Appendix E) but the increased bridge size and retaining walls would permanently and substantially contribute to the degradation of the open and relatively undisturbed forest landscape of the visual/aesthetic cumulative impact area (see Section 3.8). The proposed project would represent a substantial cumulative impact to visual/aesthetic resources.

### **4.3.2 Water Quality**

#### **4.3.2.1 Water Quality Cumulative Impact Area**

Cumulatively, development of the Big Bear Watershed (see Figure 3-30) has resulted in the extreme degradation of Big Bear Lake. The impacts associated with development of the Big Bear Valley have cumulatively contributed to Big Bear Lake being 303(d) listed under the Clean Water Act. Therefore the area shown in Figure 3-30 is considered the cumulative impact area for Water Quality.

#### **4.3.2.2 Cumulative Impact Analysis**

Big Bear Lake is 303(d) listed for nutrients, noxious plants, metals, and sedimentation/siltation. The sources of the nutrients, noxious plants and sedimentation/siltation were associated with construction/land development (see

Table 3-11). The proposed project and all of the projects identified in Table 4-1 have the potential to cumulatively contribute to the degradation of Big Bear Lake. Each of the projects within Table 4-1 has individually mitigated their project specific water quality impacts. The water quality impacts associated with the proposed project have also been fully mitigated and with the inclusion of BMPs discussed in Section 3.11.4 as well as the detention basins, water quality impacts associated with the proposed project alternatives would not represent a substantial cumulative impact to water quality within Big Bear Lake.

### **4.3.3 Cultural Resources**

#### **4.3.3.1 Cultural Resources Cumulative Impact Area**

Cultural resources impacted by the proposed project are associated with the early recreational development by the USFS (recreational residences within the SSHD), and also the downstream agricultural needs of the Redlands area (the 1884 Big Bear Valley Dam and Dam Keeper's House). The boundaries of the SSHD, Dam Keeper's House property, and the 1884 Bear Valley Dam (submerged) define the cultural resources cumulative impact area (See Figures 3-25).

#### **4.3.3.2 Cumulative Impact Analysis**

The resources identified within the cumulative impact area have been generally undisturbed since their construction. Neither Alternative 4 nor 5 would impact the 1884 Bear Valley Dam. Alternatives 4 and 5 would incorporate small portions (less than 0.5 %) of the SSHD into the proposed project; however, none of the recreational residences and/or their out buildings would be impacted by the proposed project (see Figures 3-26 and 3-27). Additionally, Alternative 5 would incorporate a small portion of the Dam Keeper's House property; however, none of the Dam Keeper's House or out buildings would be impacted by this alternative (see Figures 3-26 and 3-27). Based on the small portions of land that would be utilized from these properties and none of the buildings associated with these properties would be impacted, as well as the inclusion of avoidance and minimization measures in Sections 3.8.5 and 3.9.5, the construction of either alternative for the proposed project would not represent a substantial cumulative impact to cultural resources within the SSHD or Dam Keeper's House properties.

#### **4.3.4 Sensitive Vegetation and Wildlife**

##### **4.3.4.1 Sensitive Vegetation and Wildlife Cumulative Impact Area**

The entire project vicinity is within the San Bernardino National Forest Mountain Top Ranger District. The proposed project mainly impacts Jeffrey pine forest, which also characterizes the majority of the San Bernardino National Forest. The boundary of the San Bernardino National Forest defines the sensitive vegetation and wildlife cumulative impact area.

##### **4.3.4.2 Federal and State Listed Threatened, Endangered, Candidate and Sensitive Species**

###### **Bald eagles**

Continued development around Baldwin Lake and Big Bear Lake has resulted in continued degradation of habitat quality due to several factors: loss of perch trees considered hazards to both private/public sites; increased levels of disturbance to foraging areas as shoreline visitation increases; potential impacts to unidentified night roosts. Most of the growth in the Big Bear Valley is associated with residential development. Two areas, Eagle Point Estates and Castle Glen, have approved tract plans and are in development in accordance with their approvals. Removal of perch and night roost sites within these developments has reduced the bald eagle habitat quality. Some day use by eagles has continued, but no night roosting is known in those areas since the developments started.

No other residential developments are currently approved within the general plans of San Bernardino County and the city of Big Bear Lake. Two parcels on the north shore of Big Bear Lake (Cluster Pines and Moon Camp) are the last large areas of undeveloped private land along the lake. Together they cover about 30 hectares (75 acres) of Jeffrey pine/white fir habitat used for day perching and foraging. Both of these areas are slated for future development. The city of Big Bear Lake is in the process of updating its general plan. The USFS has provided input and comment on the general plan, relative to bald eagles. Additional planned developments in the San Bernardino Mountains near Lake Arrowhead and Silverwood Lake also threaten to cause declines in wintering populations in the mountain range.

Both of the proposed build alternatives would result in some incremental, but permanent, loss of bald eagle perching habitat. Both alternatives may result in disturbance that causes eagles not to use the immediate area for foraging during the construction period (approximately 3 years). Avoidance/minimization measures are

expected to prevent abandonment of the Bear Creek night roosts. Perch trees that are removed would be recreated at a ratio of 2 to 1 by creating “perching windows” in existing mature trees. The incremental loss of habitat would add to the cumulative loss of perching habitat throughout the San Bernardino mountains. Although the cumulative loss of perching habitat in general is considered adverse, especially around Big Bear Lake where development near the lakeshore continues to reduce the amount and quality of available habitat, the cumulative impacts associated with both of the proposed build alternatives would not be substantial due to the proposed mitigation measures.

### **Southern rubber boas and California spotted owls**

The mature mixed conifer forest habitat for southern rubber boas and California spotted owl is currently suffering from a drought cycle that has resulted in unprecedented die-off of vegetation, especially within the mixed conifer stands. This natural event has likely affected the habitat quality for these species by reducing prey and foraging opportunities. Over the longer-term, this event is likely to increase the availability of snag and log habitat components that are important to these species. However, in areas with extremely high percentages of tree mortality, stand structure may change from old growth to a younger stand. Stand components may change too, favoring more sun-loving plant species over the shade-tolerant species.

There are currently some projects or activities in the San Bernardino mountains that have potential to impact southern rubber boas and California spotted owls. As a result of the vegetation mortality and the increased fire danger near mountain communities, dead trees and logs are being removed from the SBNF and private lands to reduce fuel levels. Removal of stands of dead trees is resulting in changes to the forest landscape where high percentages of tree mortality have occurred, including changes in habitat for these species. Timber harvesting activities also result in disturbance and, for some species, potential direct losses (losses of individuals during equipment use, tree felling, etc.). Management standards are included in those projects to avoid noise disturbance impacts to nesting spotted owls.

Other threats to southern rubber boas on the SBNF include being killed on the roads and SBNF trails and collecting by forest visitors, also losses in habitat quality due to firewood collecting (cutting of snags and logs) that may reduce snag availability for nesting/denning sites and log cover for the prey base or habitat for southern rubber boas. While Forest Plan log retention standards (requirements to leave logs and

snags) are intended to help protect these habitat components, areas especially close to residential areas or high recreation use areas are often lacking log and snag habitat.

Habitat for southern rubber boas is being disturbed and lost across the San Bernardino Mountains. Both Alternatives 4 and 5 would result in small permanent losses of presumed-occupied southern rubber boa habitat and larger temporary losses of presumed-occupied southern rubber boa habitat, adding to the cumulative losses throughout the mountain range. However, with the avoidance, minimization and compensations measures incorporated into the proposed project alternatives, the cumulative impact would not be substantial.

This project has the potential to disturb California spotted owl-nesting activities; however, with the avoidance, minimization and compensations measures incorporated into the proposed project alternatives, the cumulative impact would not be substantial to California spotted owls in the mountain range.

#### **Other Sensitive Animals of Mixed Conifer Forest, Riparian Habitats, and Rock Outcrops**

Sensitive animal species considered in Chapter 3 are also likely to be impacted by similar ongoing and future drought-related fuel reduction projects, especially close to mountain communities. These projects have the potential to change forest habitats and microclimates, potentially changing the suitability for various sensitive species. However, given the amount and distribution of mixed conifer forest habitats in the SBNF, disturbance impacts are expected to be relatively short-term for the life of the project and are not a substantial cumulative impact.

Ongoing forest activities, like use of USFS roads, represent some level of continued disturbance within habitat for other sensitive plants and animals. However, most species will have already abandoned areas adjacent to the road, or only use them intermittently for foraging and not for breeding. The USFS Mountaintop Ranger District's "unclassified road restoration project" would close and restore habitat adjacent to approximately 160 kilometers (100 miles) of unauthorized roads within the district, resulting in improved habitats and lower disturbance levels for many of these species. The USFS has not yet completed the environmental assessment and decision for unclassified road restoration project.

The USFS is currently preparing an Environmental Assessment for withdrawing from mineral entry about 18,200 hectares (45,000-acres) of National Forest land around the



Big Bear area. If approved, this proposal will help reduce impacts to many species of animals and their habitats by eliminating prospecting and mining for a period of 20 years. The area is currently under a moratorium, so prospecting and filing claims are temporarily prohibited while the withdrawal request is evaluated and processed.

Alternative 4 will not result in loss of mixed conifer forest or riparian habitats and no substantial cumulative impacts to its inhabitants are expected. Alternative 5 will result in some loss of mixed conifer forest and riparian habitats and would result in potential direct impacts to animals (including death and injury) adding to the cumulative losses throughout the mountain range; however, these potential losses would not represent a substantial cumulative impact. Alternatives 4 and 5 would result in the loss of rock-outcrop habitat with potential impacts to dependent species (including bats, rubber boas, and other snakes); however, due to the large numbers of rock outcrops within the area, these impacts would not result in a substantial cumulative impact to species dependant upon rock outcroppings.

#### **Sensitive Plant Species of Mixed Conifer Forest and Riparian Habitats**

Sensitive plant species considered in Chapter 3 of this document are also likely to be impacted by ongoing drought-related fuel reduction projects, especially adjacent to mountain communities. These projects have the potential to change forest floor vegetative components and microclimates, potentially changing the suitability for various sensitive species. Given the amount and distribution of mixed conifer forest habitats in the SBNF, impacts from the proposed project would not represent a substantial cumulative impact.

The USFS Mountaintop Ranger District “unclassified road restoration project” would close and restore habitat on about 160 kilometers (100 miles) of unauthorized roads within the USFS district, resulting in an increase of less disturbed potential suitable habitat for sensitive plants. The environmental assessment and decision for that project have not yet been completed. Ongoing impacts include private land development, mining, road/trail maintenance/restoration, trampling, and wildfires. Private land development within the forest boundary is not subject to USFS approval and could result in impacts not consistent with USFS Management Plan, as well as additional loss of species and suitable habitat availability. Ongoing impacts will continue to result in some inadvertent loss of individual plants and disturbance to their habitat.

The USFS is currently preparing an Environmental Assessment for withdrawing from mineral entry about 18,200 hectares (45,000 acres) of National Forest land around the Big Bear area. If approved, this proposal will help reduce impacts to many species of plants and their habitats by eliminating prospecting and mining for a period of 20 years. The area is currently under a moratorium, so prospecting and filing claims are temporarily prohibited while the withdrawal request is evaluated and processed. Prospecting and mining activities, by the very nature of ground-disturbance, result in negative impacts to plants and habitats by dislodging, injuring, or killing vegetation on site; disrupting seedbeds; interrupting or eliminating germination; increasing the likelihood of non-native plant establishments, etc. The segregation/withdrawal helps minimize these types of impacts throughout the Mountaintop Ranger District.

Neither build alternative is expected to result in substantial cumulative impacts to any of the special status plants.



# **Chapter 5**      California Environmental Quality Act Evaluation

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## **5.1    Determining Significance Under CEQA**

Information in this chapter is presented to clarify the requirements of the CEQA and NEPA. The proposed project could have an adverse impact on the environment, and must satisfy requirements of both laws, since both the Department and FHWA must make project determinations. A combined DEIS/R has been prepared in accordance with both NEPA and CEQA.

CEQA requires a determination of significant impacts be stated in the environmental document (EIR), and that information is presented in this chapter. Under Section 15382 of the CEQA Guidelines, “significant effect” is defined as “...a substantial, or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.”

NEPA does not require a determination of significant effects in an EIS. Under NEPA, the term significant is used to describe Section 4(f) resources (49 USC 303), Section 106 properties (National Historic Preservation Act), and floodplain impacts (EO 11988).

Under NEPA, significance is used to determine whether an EIS or some lower level of documentation is required. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision to do an EIS is made, it is the magnitude of the impact that is evaluated and no judgment of its significance is applied. NEPA does not require that a determination of significant impacts be stated in the EIS; however, such a determination is required by CEQA in an EIR. This section discusses the significance of impacts in accordance with CEQA for Alternative 4 and Alternative 5. Please see the appropriate sections within this document (identified in Table 5-1

below) for a discussion of the analysis and proposed avoidance, minimization and mitigation measures.

**Table 5-1: CEQA Significance Determination**

Impact To	CEQA Determination	Document Section
<b>Visual/Aesthetics</b>	<b>Significant</b>	<b>Sections 3.8 &amp; 4.3.1 Visual Impact Analysis bound separately</b>
Utilities and Emergency Services	Not Significant with Mitigation	Section 3.6
Traffic	Not Significant with Mitigation	Section 3.7
Water Quality and Stormwater Runoff	Not significant with Mitigation	Section 3.11 & Water Quality Report
Threatened and Endangered Species	Not Significant with Mitigation	Section 3.20 & Natural Environment Study Report & Appendix E
Geology and Soils	Not Significant with Mitigation	Section 3.12
Hazardous Waste/Materials	Not Significant with Mitigation	Section 3.13 & Appendix I
Air Quality	Not Significant with Mitigation	Section 3.14 & Air Quality Report
Noise	Not Significant with Mitigation	Section 3.15 & Noise Study Report
Land Use	Not Significant	Section 3.1
Growth	Not Significant	Section 3.2
Farmlands/Agricultural Lands	Not Significant	Section 3.3
Community Impacts	Not Significant	Section 3.4
Cultural Resources	Not Significant	Section 3.9 & HPSR & FOE
Hydrology and Floodplains	Not Significant	Section 3.10 & Appendix H
Wetlands/Waters	Not Significant	Section 3.16 & Natural Environment Study Report
Vegetation	Not Significant	Section 3.17 & & Natural Environment Study Report
Wildlife	Not Significant	Section 3.18 & & Natural Environment Study Report
Wild and Scenic Rivers	Not Significant	Section 3.5
Invasive Species	Not Significant	Section 3.19
Cumulative Impacts	Not Significant	Chapter 4

## 5.2 Significant Impacts Under CEQA

### 5.2.1 Aesthetics

State Routes 18 and 38 are part of the USFS scenic byway system and are eligible for listing as State Scenic Highways. Both Alternatives 4 and 5 would require the removal of mature trees, as well as the modification of one or more large rock outcroppings in the project area. Both Alternatives 4 and 5 would introduce larger

modern transportation elements and appurtenances to the picturesque setting and gateway view of Big Bear Lake. Both alternatives would substantially modify the gateway view of Big Bear Lake as well as the historic settings of the Dam Keeper's Property and the Southwest Shore Historic District. The proposed project areas are within an area designated for visual retention by the USFS. Neither Alternative 4 nor 5 would meet the USFS guidelines for visual retention subsequent to mitigation. Mitigation is proposed; however, visual impacts associated with both Alternatives 4 and 5 cannot be mitigated to a level below significant.

### **5.3 Impacts Mitigated to Less Than Significant Under CEQA**

#### **5.3.1 Utilities and Emergency Services**

The proposed project will require utility relocation and potential service interruption. All impacts to utilities would be temporary and the affected parties would be notified well in advance of any interruption. Service interruption shall not exceed 24 consecutive hours. Affected parties would be able to notify the Department if there were any special needs that have to be addressed prior to the potential interruption.

Increased congestion can be expected during construction (spring, summer, and fall months; none in winter due to winter shutdown) within the project area. The project may require some temporary lane closures and detours. All temporary lane closures and detours would be completed on weekdays and nonholidays outside of the peak hours. Through traffic will be available at all other times and no need for a permanent detour has been identified at this time. All construction is estimated to be completed during the warmer months and would not have any significant impact on the heavier winter traffic. Through access for emergency vehicles will be maintained at all times. Subsequent to selection of a preferred alternative, a traffic management plan will be completed and circulated to emergency responders. A meeting will be held to address the needs and comments of these parties. No significant impact to utilities or emergency services is anticipated.

#### **5.3.2 Traffic Impacts**

Subsequent to selection of a preferred alternative, a traffic management plan will be developed and the impacts will be discussed in the FEIS/R. The plan will include the following elements as appropriate: public awareness campaign, highway advisory



radio, portable changeable message signs, temporary sensor/signals, bus or shuttle service and/or Construction Zone Enhanced Enforcement Program.

The TMP may also include agreements with local agencies to provide enhanced infrastructure on arterial roads or intersections to deal with detoured traffic and contracts with local agencies for traffic personnel, especially for special event traffic through or near the construction zone.

### **5.3.3 Hydrology and Water Quality**

Potential project impacts on hydrology and water quality from the proposed project would be less than significant. Three detention basins are incorporated into proposed designs for each build alternative to capture first flush waters associated the new roadway. In addition, proposed construction measures, BMPs and water quality permit requirements would prevent degradation of water quality within Big Bear Lake and/or Bear Creek.

### **5.3.4 Threatened and Endangered Species**

Both Alternatives 4 and 5 would impact bald eagle perch trees and permanently impact southern rubber boa habitat. Perch trees would be recreated by cutting a window in the tops of existing trees at a ratio of two new perch trees for each tree removed. Southern rubber boa habitat permanently impacted would be acquired at a ratio of three acres for every acre permanently impacted. All areas impacted during construction would be restored subsequent to construction in accordance with the conceptual revegetation plan (see Appendix E). Subsequent to selection of a preferred alternative a final restoration plan will be developed using the guidelines from the conceptual revegetation plan.

### **5.3.5 Noise**

Temporary construction noise impacts will occur with the proposed project but will comply with the special provision for construction noise and will not exceed 86 dBA at 15 meters (50 feet) during the hours from 9:00 p.m. to 6:00 a.m. No significant noise impacts are anticipated.

### **5.3.6 Other Impacts**

With the implementation of minimization and compensation measures identified within this document, impacts to the following environmental resources were determined not to be significant: Geology and Soils, Hazardous Waste/Materials, and Air Quality.

## **5.4 Impacts Less than Significant**

### **5.4.1 Cultural Resources**

The Dam Keeper's House, Big Bear Lake Southwest Shore Historic District and the 1884 Bear Valley Dam were determined to be historic resources pursuant to CEQA. Impacts to these historic resources from proposed Alternative 4 and 5 are not considered significant under CEQA because the proposed project would not result in a substantial adverse change in the significance of any of these historical resources and the resources would not be materially impaired (CEQA Guidelines, 15064.5).

### **5.4.2 Other Impacts**

The proposed project alternatives have less than significant impacts to: Land Use, Growth, Farmlands/Agricultural Lands, Community Resources, Floodplains, Wetlands and Waters, Vegetation and Wildlife.



## **Chapter 6**      **Comments and Coordination**

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Early and continued coordination with the general public and appropriate public agencies is an essential part of the environmental process. Public comments help determine the scope of environmental documentation, the level of analysis and potential impacts, mitigation measures and related environmental requirements. Agency consultation and public participation for the project have been accomplished through a variety of formal and informal methods including project development team meetings, interagency coordination meetings and public open house/information meetings. This chapter summarizes the results of the Department's efforts to fully identify, address and resolve project-related issues through early and continued coordination. Early coordination was documented in a public scoping report completed in 1990. This report is bound separately and is available for review with the other technical reports for this project.

### **6.1 Cooperating and Responsible Agency Coordination**

The FHWA/Department sent request letters for resource agency participation as cooperating/responsible agencies during the planning process on September 23, 1993. Letters were sent to the following agencies:

- Cooperating Agencies: United States Army Corps of Engineers, United States Environmental Protection Agency, United States Fish and Wildlife Service, United States Forest Service.
- Responsible Agency: Regional Water Quality Control Board, California Department of Fish and Game.

In response to the request letters, the USFWS and the USFS agreed to be cooperating agencies under NEPA and the RWQCB Santa Ana Region and CDFG agreed to be responsible and trustee agencies, respectively as required pursuant to CEQA (see Appendix B).

## 6.2 Scoping Process

The scoping process includes formal procedures to satisfy federal and state requirements for public notification and consultation. The goal of the scoping process is to lay a firm foundation for the environmental process and to support the decision-making process. In some cases, the process identifies serious environmental problems that may be avoided by redirection of engineering efforts. The scoping process objectives were:

- To identify the concerns and requirements of public agencies affected by the project;
- To define the project issues and the alternatives that would be evaluated in detail;
- To insure that the environmental document focuses on relevant issues; and
- To reduce the possibility that new comments or information will require the document to be rewritten or supplemented.

The scoping process for the proposed project included three elements:

- Interviews of key agencies/community special interests;
- Agency scoping meeting; and
- Public open house.

The goals for the project identified for the purpose of the scoping process, which were incorporated into this environmental document, were:

- To remove the SR-18 bridge and roadway from on top of the Bear Valley Dam to facilitate construction of the dam spillway improvements;
- To replace the degraded and functionally obsolete SR-18 bridge;
- To improve the approach roadway geometrics;
- To provide separate and independent dam and highway facilities;

- To improve traffic operations on the bridge and at the junction of SR-18 and SR-38; and
- To minimize and mitigate adverse project impacts.

The scoping process included interviews of agency personnel, community members and special interest groups that have a specific interest in the project, to identify their concerns about the project and assist the Department in defining an appropriate range of alternatives. The scoping process consisted of scoping interviews conducted in 1990 on April 25-27, an agency scoping meeting on June 5, 1990 and a public open house on July 9, 1990.

### **6.2.1 Scoping Interviews**

Key agencies, individuals and groups that might have a specific interest in the project were interviewed to identify their concerns about the project and to assist in defining an appropriate range of alternatives. The people who were interviewed represented the following interests:

- San Bernardino County;
- Big Bear Lake Homeowners Association;
- Developers;
- Big Bear Sportsmen Association;
- Snow Summit Ski Resort;
- Big Bear City Community Services District;
- USFS;
- City of Big Bear Lake; and
- Big Bear Valley Historical Society.

Information from the scoping interviews resulted in the development of Alternative 2 (as described within this document) and modification to the alignment of Alternative 4 (as described within this document) to minimize impacts to the Southwest Shore



Historic District. Alternatives 3 and 5 remained the same as they were presented during the scoping interviews.

#### **6.2.1.1 Summary of Concerns Raised During the Scoping Interviews**

The following issues were identified during the scoping interviews:

- Replacement and widening of the existing bridge was not necessary (See Section 1.3 and memo in Appendix A);
- No justification for a four-lane project (None of the build alternative are four-lane alternatives. The third lane on the bridge is for storage at the proposed signal to improve intersection channelization. See Sections 2.1.2.2, 2.1.3.2, 3.7 and 3.7.2.1. Additionally, the 3-lane Alternatives are based on 20 year design life of the project and future operational needs);
- Improving safety and emergency access, and increasing the capacity of the existing roadway was cited as being beneficial (Capacity of the roadway is not being increased only storage capacity on the bridge and the intersection capacity to improve channelization. However, providing large shoulders in both of the proposed build alternatives will improve emergency access during peak traffic hours when accidents are most likely to occur);
- Questioned why the existing bridge could not be widened and or improved on the same alignment (see memo in Appendix A and Section 2.2.2);
- The proposed project was a lower priority than transportation needs for the entire area. Higher priority projects suggested included: straightening the road west of Running Springs; making four lanes consistent through the city of Big Bear Lake; providing guardrails on SR-18 west of Big Bear; and preventing rocks from falling onto SR-18 west of Big Bear (Some of these issues have been addressed over the last 14-15 years; however due to the existing condition of the bridge and its continued degradation this project is one of the Department's highest priority projects);
- Opposition to additional growth of the community. Some interviewees perceived that the proposed project would encourage growth and bring more traffic to Big Bear by providing better access (Access into Bear Valley and the city of Big Bear on SR-18 (one lane) will be the same as it currently exists. The additional lane on the bridge is for storage at the signal to improve

channelization. Only the intersection capacity and access out of the city of Big Bear Lake on State Route 18 at the intersection of SR-18 and SR-38 would be improved. The proposed project is not growth inducing [see Sections 2.1.2.2, 2.1.3.2 & 3.2)];

- Alternative selection criteria determined to be important fell into two categories a) safety, cost and operational efficiency and, b) protection of environmental and cultural resources and preservation of the qualities that make the valley attractive to residents and tourists;
- Additional alternatives that were suggested in addition to those presented during the scoping interviews included: a) ranged from diverting the ski traffic onto SR-38 to diverting all traffic onto SR-38 and removing access across the dam; b) improving or widening the existing bridge or building a new bridge on the same alignment and c) modifying the lake crossing alignment so that it more closely conforms to the existing roadway (All reasonable alternatives that meet the projects purpose and need were evaluated during the planning process. Item C from above was incorporated into proposed build Alternative 4.).

See the 1990 scoping report for complete details of comments on the proposed project from the scoping interviews.

## **6.3 Notification of Scoping**

### **6.3.1 Agency Notification**

On January 17, 1991, local, state, and federal agencies, as well as other interested parties, were formally notified of the project through a Notice of Preparation (NOP), Preliminary Environmental Significance Checklist, and a Notice of Initiation (NOI) of studies letter. This notice discussed the purpose for the study, project limits, the need for agency input, and provided Department contact information for individual/agencies to request additional project information. On August 16, 1990, FHWA issued the NOI to prepare an EIS for this project. The NOI was published in the Federal Register on August 30, 1990 and included a description of the scoping process for this project. On November 12, 2004, the FHWA republished the NOI due to the length of time passed since it was originally published and to update the project information. The NOIs and NOP are included in Appendix B.

#### **6.3.1.1 Agency Scoping Meeting (June 5, 1990)**

A letter was mailed to 24 agencies and individuals that had identified a special interest in the project. The meeting was held at the Big Bear Performing Arts Theater in Big Bear Lake and was attended by 28 people from the 12 agencies. The local weekly newspaper, The Grizzly, published an article about the meeting. In addition to the agencies, six private citizens also attended the meeting. Agencies attending the meeting included:

##### **Invitees in Attendance**

- San Bernardino County
- US Forest Service
- Natural Resources Conservation Service
- San Bernardino Department on Environmental Health
- California Highway Patrol
- San Bernardino Associated Governments
- San Bernardino County Land Development
- San Bernardino County Transportation
- Big Bear Municipal Water District
- Big Bear Lake Fire Department
- City of Big Bear Lake

##### **Invitees Not in Attendance**

- California Department of Fish and Game
- California Department of Water Resources
- California Public Utilities Commission
- 25<sup>th</sup> Senatorial District Representative
- 35<sup>th</sup> Congressional District Representative
- 61<sup>st</sup> Assembly District Representative
- Sierra Club
- South Coast Air Quality Management District
- State Water Resources Control Board
- US Army Corps of Engineers
- US Fish and Wildlife Service

The Department presented details of the proposed project at the meeting. An agency-scoping questionnaire was distributed to all attendees and the responses returned to the Department for consideration during the environmental process.

Additionally, the USFS requested to have a project development team meeting on July 9, 1990 at 1:30 p.m. prior to the public open house scheduled for the evening of July 9<sup>th</sup>. See the 1990 scoping report for the complete details of comments provided by the agencies on the proposed project.

### **6.3.1.2 Summary of Concerns Raised at the Agency Scoping Meeting**

The following issues were identified during the agency-scoping meeting:

- Has capacity been determined for each intersection for each alternative? (see Table 3-7)
- How will the intersection of SR-18 and SR-38 be handled? (see Sections 2.1.2.2, 2.1.3.2 and Figures 2-2 and 2-3)
- What would be the noise and air quality impacts during construction and how would they be mitigated? (see Sections 3.14 and 3.15)
- When would it be appropriate to consider developing a four-lane highway through Big Bear Lake? (This is determined by travel demand, funding and project priority. Much of SR-18 through the city of Big Bear Lake already is 4-lanes. Outside the City limits to the west, the Route Concept Report indicates Maintain Only for segments 7 and 8 [see Section 3.7.2]).
- What would happen if the alternatives were two-lanes rather than four-lanes? (Two lane alternatives would not meet guidelines for building projects to meet a 20-year design life and the intersection and emergency access during peak traffic hours would continue to degrade. [see Section 3.7 and Table 3-7])
- What would happen if SR-38 only was used? (see Section 2.1.1 and Figure 2-4)
- How would emergency access be affected during construction? (see Section 3.6)
- How would the storage and protection of explosives be handled? (see Section 3.6.4)

- How would the lake's stratification system be affected by the proposed project? (The stratification system would not be impacted. [see Section 3.6.1.1])
- How would downstream water releases and the Parshall Flume be affected by the proposed project? (see Sections 3.5.3 & 3.6.1.1)
- How would the proposed project affect lake water quality? (There would be a permanent improvement in local lake water quality due to the inclusion of detention basins; however, neither of the build alternatives would have an appreciable effect on overall water quality within the lake. [see Section 3.11])
- How would public access to the lake be affected by the proposed project? (The project would not affect public access to the lake. Boating is not allowed within the project areas. Both build alternatives would limit access to the lake shore within the project areas during construction [see Appendix F, Sections 4.3.4.3 and 4.3.5.3])
- How would the proposed project affect cabins owned by USFS permit holders? (The proposed project would not affect any of the recreational residences within the SSHD. Alternative 4 would limit or require modified parking/access during construction of this alternative for two of the cabins. Neither of the build alternatives would require relocation/demolition of any recreational residences within the proposed project area [see Figure 3-5 and Appendix F, Section 4.3.4.1].)

See the 1990 scoping report for complete details of comments on the proposed project from the agency scoping meeting.

#### **6.3.1.3 Summary of Concerns Raised by the USFS (July 9, 1990)**

A special project development team meeting was held on July 9, 1990 with the USFS, prior to the public scoping meeting. The USFS is a cooperating agency under NEPA (see Appendix B) and the proposed project is entirely on lands administered by the USFS. The project will require a USFS transportation easement, which will require a temporary use permit. A temporary use permit will require a NEPA finding by the USFS regarding the proposed project. The USFS can either adopt the Department's NEPA document or complete their own NEPA finding if necessary. The proposed project will be completed in accordance with USFS policy. The proposed project is consistent with the USFS Land and Resource Management Plan.

The USFS has been involved during the entire planning process, and the topical issues have been addressed in Chapters 1-3.

The topical issues identified during the scoping process and were considered during project development and within the environmental document are identified below:

- Geology (unique visual quality);
- Waste disposal (long and short term);
- Recreational residences;
- Don Carlos Spring;
- Vegetation;
- Bats;
- Southern rubber boa;
- Spotted owl;
- Bald eagles;
- Pocket mice;
- Riparian habitat;
- Historic resources;
- Visual impacts;
- Sedimentation;
- Maintenance of water rights;
- Effects of blasting;
- Bike route;
- Transportation easement;



- ACOE 404 permit;
- Recreational opportunities;
- Road maintenance practices;
- USFS project benefits;
- Traffic flow;
- Fire protection;
- Scenic byways;
- Timber loss;
- Fisheries; and
- Lot values.

See the 1990 scoping report for the complete details of comments on the proposed project from USFS during the PDT meeting.

### **6.3.2 Public Notification**

A notice of public scoping meeting/scoping meeting was placed in local newspapers (Big Bear Life and The Grizzly). A letter of notification was sent to public officials determined by the project development team to have an interest in the project and a copy of the public meeting notice was mailed to approximately 500 persons and organizations, including all USFS special use permit holders within the area. The newspaper articles as well as a copy of the notice of public meeting that was mailed are included in the 1990 Scoping Report bound separately.

#### **6.3.2.1 Public Scoping Meeting (July 9, 1990)**

A public scoping meeting was held on July 9, 1990 in the Big Bear Performing Arts Center to give citizens an opportunity to discuss the project alternatives, identify issues, and voice their concerns. During the open house, the public was invited to review the project exhibits, and discuss and comment on the project. Sixty people attended the public scoping meeting. See the 1990 scoping report for the complete details of comments provided from people who attended the public open house.

### **6.3.2.2 Summary of Concerns Raised During the Public Scoping Meeting**

The public concerns regarding the proposed project are addressed in the previous sections of this DEIS/R; however, issues identified as major concerns within the 1990 scoping report include the following:

- The project would be the first step to widening SR-18 all the way to the city of Big Bear Lake (see Section 6.3.1.2, 4<sup>th</sup> bullet);
- The project would cause the loss of environmental and scenic resources (Biological and scenic resources would be impacted by both build alternatives. The Department will minimize impacts to the maximum extent practicable. (see the Visual Impact Assessment [bound separately] and Sections 3.17-3.20); and
- The project would impact historic/cultural resources, particularly the Dam Keeper's House and the cabins within the Big Bear Southwest Shore Historic District (The proposed project would require minor takes of both the Dam Keeper's Property and the Big Bear Lake Southwest Shore Historic District; however, neither of the proposed build alternatives would impact any of the structures located on these properties [see Section 3.9, Appendixes F&G and the HPSR and FOE bound separately]).

See the 1990 scoping report for the complete details of public comments on the proposed project provided during the public scoping meeting.

## **6.4 Native American Community Coordination**

Regulations implementing the National Historic Preservation Act (36 CFR Section 800) require that a federal agency (FHWA and the Department acting on its behalf) must consult with any Native American tribes that attach religious and/or cultural significance to historic properties that may be affected by an undertaking, regardless of location. Consultation with the Native American community was initiated through the Native American Heritage Commission (NAHC). The California Public Resources Code (Sections 5097.91-5097.99) requires each state and local agency to cooperate with the NAHC in carrying out its duties to notify and protect sites considered sacred to Native Americans.

Below is a chronological summary of Department coordination with the Native American community for the proposed project. All consultation and correspondence with the NAHC and tribes identified by the NAHC is included as an attachment to the HPSR (bound separately).

- 09/09/2004: Caltrans Cultural Studies sent Sacred Lands File search request letter to Native American Heritage Commission (See Appendix M).
- 11/01/2004: No response received as of this date. Follow-up phone call request to NAHC; no response to date. Emailed pdf copy of 09/09/2004 letter and maps.
- 11/02/2004: NAHC response to Caltrans: negative results on Sacred Lands File search, attached list of Native American contacts (see Appendix M).
- 11/04/2004: Native American consultation letters sent to (see Appendix M):

Morongo Band of Mission Indians  
San Fernando Band of Mission Indians  
San Manuel Band of Mission Indians

- 11/09/2004: Response email from Morongo Band of Mission Indians: The Band has no specific information regarding cultural resources within the project/area (see Appendix M).
- 01/18/2005: No response received from San Fernando Band of Mission Indians as of this date. Follow-up phone call request made.
- 01/18/2005: No response received from San Manuel Band of Mission Indians as of this date. Follow-up email request made, attached pdf copy of 11/04/2004 letter and maps.
- 01/19/2005: Received email from San Manuel Band of Mission Indians; requested FAX copy of 11/04/2004 letter and maps. Sent requested FAX.
- 01/19/2005: Received response phone call from San Fernando Band of Mission Indians: The Band has no concerns regarding this project (see Appendix M).

- 01/20/2005: Received FAX response letter from San Manuel Band of Mission Indians. Letter states that the project is “in the area of highly sensitive known Serrano Cultural Resources,” and requests a Native American monitor approved by the Band be used throughout the project. Also requests copy of final reports (see Appendix M).
- 02/02/2005: Sent copy of cultural resources reports to San Manuel Band of Mission Indians. Indicated in transmittal letter that request for monitor will be addressed as project construction nears.

## **6.5 Additional Project Coordination and Public Outreach**

### **6.5.1 Project Presentation to Big Bear Kiwanis Club & Big Bear Lions Club**

Both the Big Bear Kiwanis and Lions Clubs requested the project development team make presentations about the proposed project at one of their regular meetings. The proposed project was presented on May 15, 1990 to the Kiwanis Club and on August 16, 1990 to the Lions Club. Both organizations were added to the mailing list for the proposed project.

### **6.5.2 National Environmental Policy Act and Clean Water Act Section 404 Integration**

In 1997, FHWA and the Department began coordinating with the federal resource agencies (USFWS, ACOE, and EPA) to implement the integration of the National Environmental Policy Act and the Clean Water Act (NEPA/404 Integration Process) for the proposed project. The NEPA/404 integration process is an agreement between the US Department of Transportation (DOT), the ACOE, and the US EPA to adopt as agency policy (1) improved interagency coordination and (2) integration of the National Environmental Policy Act (NEPA) and the Clean Water Act (CWA) Section 404 procedures.

Concurrence was received on purpose and need and the analysis of alternatives; however, further minimization of impacts to natural resources will continue subsequent to selection of a preferred alternative, FESA and CESA Section 7 and 2081 consultation, respectively and final project design.

On October 30, 2000, FHWA issued interim guidance thresholds for federal-aid transportation projects that require the NEPA/404 Integration Process. These thresholds were:

- Impacts greater than 2 hectares (5 acres) to special aquatic sites; or
- Impacts greater than 2 hectares (5 acres) to other waters of the U.S.

If a project's impacts are less than these interim thresholds, the project proponent may inform all actively participating NEPA/404 agencies that they are withdrawing from the process.

Currently, FHWA is working on a new/revised MOU for implementation of the NEPA/404 integrated process.

In February of 2003, subsequent to further consultation with the participating NEPA/404 resource agencies, more detailed impact analysis, and pursuant to the FHWA interim threshold guidance MOU, the project was formally withdrawn from the NEPA/404 process. Concurrence for withdrawing the project from the NEPA/404 process was obtained from the ACOE and EPA on April 22 and April 14, 2003, respectively (see EPA and ACOE concurrence letters in Appendix L). The USFWS indicated there is no need for their agency to respond in writing and gave verbal approval to the Department's decision to withdraw from the NEPA/404 integrated process.

### **6.5.3 Additional Public Information Meetings/Open House**

#### **6.5.3.1 Section 106 Public Participation (August 8, 1997)**

On August 8, 1997, in accordance with the Advisory Council on Historic Preservation Regulations (36 CFR 800.2 as amended January 11, 2001), the public was invited to discuss and comment on the proposed project, the historic properties identified within the area of potential effects and the draft Finding of Effect. The draft Finding of Effect was completed to determine how the impacts associated with the proposed project would affect the historic resources that were determined to be on or eligible for the National Register of Historic Places. The meeting was held at the USFS, Old Big Bear Ranger Station, in Fawnskin. At the meeting, Department staff summarized the Section 106 review process, the proposed project and the Draft Finding of Effect.

Prior to the meeting, the Finding of Effect was mailed to nine "interested parties". The interested parties included USFS personnel, city of Big Bear Lake Community

Development Department, Big Bear Valley Historical Society, a local historian, and a member of the Southwest Shore Colony Association. All of the interested parties attended the meeting and summaries of their comments are provided below.

General Comments:

- Purpose and need of the project, as well as the need for the wider bridge and widened approach roadways were questioned by several of the interested parties (see Chapter 1);
- Issues related to traffic capacity, safety and potential future projects were questioned by several of the interested parties; however, it was also indicated that there is local support for relief of existing traffic congestion (see Section 3.7);
- USFS indicated a desire to develop the Dam Keeper's House as an interpretative center and gateway to the scenic qualities of Bear Valley (The proposed project would not impact the Dam Keeper's House or access to the Dam Keeper's House);
- USFS had concerns about public access to the shoreline and to the existing Big Bear Lake Bridge for recreational use (Shoreline access would only be limited during construction and the existing bridge would be removed subsequent to construction of a replacement structure [see Chapter 1 and Appendix F]; and
- It was proposed that other project alternatives be explored, including improvements to the existing Big Bear Lake Bridge and alternative modes of transportation to Bear Valley (see Sections 2.1.4 and 2.2.2).

Section 106 Comments: All Comments have been addressed in the FOE, bound separately.

- Clarification of the NRHP status of the existing Big Bear Lake Bridge and the 1911 Bear Valley Dam was requested by a USFS permit holder;
- The existing bridge and dam were suggested as important contributors to the setting of the three historic properties within the area of potential effects by a USFS permit holder;



- Alternative 1: “No Action/No Build” is favored by the Big Bear Valley Historical Society;
- Adamant opposition to any project in the area of the existing dam that would affect the three historic properties within the area of potential effects by the local historian. The local historian proposed additional alternatives to the replacement of the existing bridge and are provided in Exhibit C of the HPSR;
- Revision of a component of Alternative 5 was proposed by a USFS permit holder to realign the first curve east of the dam onto the lakeshore to eliminate cutting the rock outcropping and the need for a retaining wall;
- USFS requested information regarding proposed excavation techniques for the rock slopes. USFS proposed avoidance of blasting;
- Several attendees proposed the use of excess material as screening for proposed retaining walls; and
- Mitigation suggestions will be submitted by the USFS.

Subsequent to the selection of a preferred alternative, an MOA will be completed between the USFS, FHWA, State Historic Preservation Office, Council on Historic Preservation and the Department to minimize and mitigate impacts to the three eligible properties to the maximum extent feasible.

#### **6.5.3.2 Public Information Meeting/Open House (September 30, 1997)**

A public information meeting/open house was held on September 30, 1997 at the Big Bear Lake Civic Center. The meeting focus was to provide the public with information regarding the proposed project as well as review the proposed alternatives and discusses public concerns. Forty-six attendees signed in at the meeting. A summary of comments/questions from the meeting included the following:

- Why were Alternatives 1, 2 and 3 dropped from further consideration as viable alternatives? (see Section 2.2)
- What is the cost for maintaining the existing bridge as compared to the construction of a new bridge? (The bridge must be moved off of the existing dam, as well as maintaining the existing bridge in perpetuity is not an option [see memo in Appendix A])

- Why wasn't a two-lane alternative considered? (Two lane alternatives were considered [see Section 3.7])
- Is the proposed project a precursor to a four-lane widening of SR-18 into the city of Big Bear Lake? (see 4<sup>th</sup> Bullet, Section 6.3.1.2)
- The need for the proposed signalization of the intersection was questioned; (Signal warrants were studied for the project and warrants were met for a signalized intersection [see Section 1.3.1.3 and Appendix E of the Traffic Study]. Additionally, Table 3-7 indicates LOS improvement due to improvements in intersection operational efficiency associated with installation of a signal).
- Has the potential loss of business associated with perceived construction traffic problems been considered? (The project is limited in scope and will maintain traffic flow through the project area. The contractor will work during the weekdays and will cease operations during the winter. No loss of business associated with the project is anticipated)
- A one-way alternative around the lake was proposed (This suggestion is not compatible with the existing circulation needs or infrastructure. Additionally, this suggestion would not eliminate the need for a new bridge located off of the existing dam);
- A new two-lane bridge with one-way traffic was proposed with the existing bridge also handling one-way traffic (This alternative would not meet the purpose and need because the existing bridge must be moved off of the existing dam.);
- A bridge built directly over the existing bridge was proposed (This alternative was analyzed and withdrawn from further consideration [see Section 2.2.2]; and
- Aesthetic treatment for cut slopes and retaining walls was identified as being important (Aesthetic treatment will be utilized throughout the project to minimize visual impacts [see Section 3.8.4, Figure 3-24 and Visual Impact Assessment (bound separately) for proposed mitigation for visual impacts].

### **6.5.3.3 Public Information Meeting/Open House (May 3, 2001)**

The Department held a public information meeting/open house on May 3, 2001 in the conference room at the Big Bear Municipal Water District. The meeting was conducted to update the public on the status of the project and provide the public with the opportunity to review the project alternatives and exhibits and discuss the project with Department environmental and engineering staff. The alternatives proposed were three-lane versions of Alternatives 4 and 5 as opposed to four-lane versions presented at all previous public information meetings/open houses. Department staff made no formal presentation. There were 47 people who signed in at the meeting. A summary of comments resulting from the meeting included the following:

- Concerns regarding how construction operations would affect commuter and tourist traffic flows (Potential delays associated with temporary lane closures and detours are possible. Through traffic will be maintained during construction);
- Concerns regarding the project timing, length of construction, and the need for increased public information prior to and during construction; (The proposed project would be constructed from early spring until the winter shutdown. It is anticipated that it will take 2-3 years to build. An extensive public relations campaign is proposed for the project [see Section 3.7.5])
- Concerns regarding the proximity of Alternative 4 to the lake and cabins; (Proposed Alternative 4 has been relocated outside the SSHD and at a location that would both minimize impacts to resources and meet current Department design standards)
- Concerns regarding excavation techniques and blasting as an option; (Excavation for either of the build alternatives would likely require controlled blasting. Blasting plans would be reviewed by the Department and would be completed in a manner that would not jeopardize the integrity of the dam or cultural resources and would minimize harm to biological resources. All blasting would be planned and executed by a certified and experienced blasting engineer. If it is determined that blasting would not be acceptable, a chemical expansive material or other means would be used to excavate. However, it should be noted that controlled blasting would dramatically decrease the duration of excavation activities.); and

- Concerns regarding parking along the roadway subsequent to construction (Parking along the roadway would be available but would vary depending on the selection of a preferred alternative. If the forest service desires any remaining portion of the existing roadway, it would be relinquished to them and could be utilized for parking [see Figures 2-2 and 2-3]. Additionally both of the proposed build alternatives would have 3-meter (10-foot) shoulders that could be utilized for parking).

#### **6.5.3.4 Public Agency Coordination and Update meetings**

On May 2, 2002 and August 20, 2003 meetings were held at the Department's district office to provide a project update, as well as refocus agency efforts on the proposed project. The Department presented the proposed alternatives as described in Chapters 1-5. The following agencies attended one or both of these meetings:

- USFS (cooperating agency)
- USFWS (cooperating agency)
- City of Big Bear Lake
- County of San Bernardino
- Regional Water Quality Control Board (responsible agency)
- Big Bear Municipal Water District
- CDFG (responsible agency)

All of the above agencies are critical to the delivery of the proposed project. Coordination with the agencies will be ongoing throughout the environmental, design and construction processes. The agencies have given conceptual approval for the proposed project alternatives as well as acknowledged the project's purpose and need.



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## Chapter 9      References

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## Appendix A Structural Deficiency Documentation

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Photo showing width limitations of the bridge due to nonstandard size.



Photos showing the degradation of the concrete in the bridge deck and bridge railings



State of California  
Housing Agency

Business, Transportation and

## Memorandum

To: Bill Jones, Chief  
Office of Structure Design  
Attn: Carroll Harris/Jerry McKee

Date: November 8, 1990

File: 416


From: DEPARTMENT OF TRANSPORTATION  
OFFICE OF STRUCTURES MAINTENANCE  
AND INVESTIGATIONS

Subject: Big Bear Lake Dam Bridge (Br. No. 54-310)

You have asked our Office to assess the current condition of this structure, to consider the likelihood of its further deterioration, and from that appraisal, to recommend an appropriate strategy for the future.

For some considerable time, this bridge has increasingly experienced widespread deterioration. There are numerous locations of exposed and seriously corroded reinforcing steel in areas important to the integrity of the structural frame and there is little remaining quality in the concrete of this heavily salted bridge. Structural rehabilitation of the areas now showing need, would not in any way arrest the deterioration of this structure and would, at best, be a very temporary remedy. Further, there are no reasonable rehab techniques that can address the narrow width or any of the other bridge features that catalog this structure as "Functionally Obsolete" under the criteria of the Bridge Replacement program. Without the ability to correct the functional obsolescence, neither HBRRP funding nor other sources of federal funds would be available for any level of rehab work. In the event of the use of alternative state funding for structural rehab, this bridge would be disqualified from HBRRP participation for a period of ten years.

Aside from the issues of funding source, the costs for structural rehab, particularly if assessed to include the indicated need for seismic retrofitting, could not be justified against the cost and value of a replacement structure. In this particular case, there is no reasonable long-term solution except to construct a new bridge to serve traffic at this site.

  
I. Nagai, Chief  
Office of Structure Maintenance  
and Investigation

IN/ms

cc: P. Askelson  
G. Yamamoto  
Correspondence Book

20.3





# Appendix B NOI, NOP, Cooperating and Responsible Agency Letters

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equipment manufacturer modifies the system. Applying that paragraph to non-OEM replacement parts, the non-OEM supplier may obtain certified equipment, substitute its own replacement part(s), and submit the modified device to a third party certification body for testing. Non-OEMs seeking interim certification of their replacement parts in OEM lighting equipment will be required to follow the same procedures as OEMs of lighting equipment as provided in paragraph 2a of AC 150/5345-53B. Also, these non-OEMs will be required to pay for the costs of testing their products in OEM lighting equipment, just as OEMs, under paragraph 2b of that advisory circular bear, the costs of testing their equipment. The addendum to AC 150/5345/53B will be modified to include equipment certified in this manner with specific substitute part(s). Separate tests will be required for each combination of substitute parts (e.g., a supplier selling both a flash tube and a timing circuit must have a device certified with each part substituted independently, and then together).

As part of this interim procedure, non-OEM components will be subject to Appendix 2 of AC 150/5345-53B with the following exception. Paragraph 7 of Appendix 2 of that AC notes that "substitution of stock electrical items such as resistors, capacitors, transistors, etc., which are identical in form, fit, and function and which are equal to or better in quality and rating is permissible." This exemption is not extended automatically to non-OEM suppliers, as OEM specifications for stock items may be more stringent than those applied by the manufacturers of those items. However, this exemption may be granted at the third party certification body's judgment. The requirements of Appendix 5, Lamp Life Test Procedure, in AC 150-5345-53B, will apply to replacement lamps. Upon the issuance of any permanent change to the certification program, the FAA will decide if substitute parts certified under this interim program will require further testing to retain certified status.

Issued in Washington DC, on November 4, 2004.

**J.R. White,**

*Director of Airport Safety and Standards.*

[FR Doc. 04-25209 Filed 11-10-04; 8:45 am]

BILLING CODE 4910-13-M

## DEPARTMENT OF TRANSPORTATION

### Federal Highway Administration

#### Environmental Impact Statement: San Bernardino County, CA

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of intent.

**SUMMARY:** The FHWA is republishing this notice to advise the public that an Environmental Impact Statement (EIS) is being prepared for the proposed highway project along State Route 18 in San Bernardino County, California. It is being republished due to the length of time since the original Notice of Intent (NOI) was published, which was August 30, 1990 (*Federal Register*, vol. 55, no. 169) and project changes.

**FOR FURTHER INFORMATION CONTACT:** Mr. César E. Pérez, Team Leader—South Region, Federal Highway Administration, 650 Capitol Mall, Suite 4-100, Sacramento, California 95814, Telephone: (916) 498-5065.

**SUPPLEMENTARY INFORMATION:** The FHWA, in cooperation with the California Department of Transportation, is preparing an EIS for the proposed Big Bear Lake Dam Bridge Replacement Project on State Route 18 in San Bernardino County, California. The proposed project will facilitate completion of the Big Bear Dam spillway project, move vehicular traffic off the dam structure, and improve the geometrics of the approach roadways. Existing State Route 18, within the project limits (kilo-post miles 71.1/71.9 [post miles 44.2/44.7]) has curves where the posted speed limit is less than 25 miles per hour. These curves will be realigned and the overall roadway brought up to current design standards within the project limits. This includes a wider bridge with three lanes to accommodate existing and future travel demands within the Big Bear Lake area, as well as 10-foot shoulders to accommodate nonmotorized travel and better facilitate winter snow removal. The original NOI proposed four lanes.

The U.S. Forest Service is a cooperating agency. Consultation with the U.S. Forest Services has been, and will continue to be, undertaken to minimize impacts to the surrounding San Bernardino National Forest associated with the construction of the proposed project.

Alternatives currently under consideration are the result of the 1990 public and agency scoping meetings, as well as comments received from multiple public information meetings/open houses held in the Big Bear area.

These alternatives include: Alternative 1—No Action; Alternative 4—construct new bridge upstream of the existing bridge crossing over Big Bear Lake; and alternative 5—construct new bridge crossing over Bear Creek Canyon downstream of the existing bridge. Alternatives 2 and 3 were eliminated after initial scoping due to a higher level of anticipated impacts to properties eligible for listing on the National Register of Historic Places and a larger impact area and subsequent adverse impacts to biological and visual resources. In addition, Alternative 2 would have replaced the roadway on the existing bridge. Seismic concerns and conflicts with operation of the dam also supported the decision to eliminate replacing the roadway on the existing bridge as was identified as an alternative in the 1990 NOI.

Letters describing the proposed action and soliciting comments were previously sent to appropriate Federal, State, and local agencies, and to private organizations and citizens who have expressed, or are known to have, an interest in this proposal. A formal agency scoping meeting was held June 5, 1990, in the City of Big Bear Lake, California. A public scoping meeting was held July 9, 1990, also in the City of Big Bear Lake, California. At the request of the Big Bear Kiwanis and Big Bear Lions Clubs, the proposed project was presented to the clubs in the City of Big Bear Lake, California, on May 15, 1990, and August 16, 1990, respectively. On August 8, 1997, in the City of Big Bear Lake, California, a public participation meeting was held in accordance with the Advisory Council on Historic Preservation Regulations regarding section 106 of the National Historic Preservation Act to discuss/comment on the draft Finding of Effect. Public information meetings/open houses were held in the City of Big Bear Lake, California, on September 30, 1997, and May 3, 2001, to keep the public up to date and continue with the public information program. Finally, public agency coordination and update meetings were also held on May 2, 2002, and August 20, 2003. The public information program will continue throughout the environmental process.

To ensure that the full range of issues related to this proposed action are addressed, and all significant issues are identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to the FHWA at the address previously provided in this notice. The Draft EIS will be available for public and agency review and comment prior

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to the public hearing for the proposed action. It is anticipated that the Draft EIS will be available for review in early 2005.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulation implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Issued on: November 5, 2004.

**Mr. John E. Dewar,**

*Acting Chief Operating Officer, Sacramento, California.*

[FR Doc. 04-25194 Filed 11-10-04; 8:45 am]

BILLING CODE 4910-22-M

## DEPARTMENT OF TRANSPORTATION

### Federal Railroad Administration

#### Request for Comments

AGENCY: Federal Railroad Administration, DOT.

ACTION: Notice and request for comments.

**SUMMARY:** In compliance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*), this notice announces that the Information Collection Requirement (ICR) abstracted below has been forwarded to the Office of Management and Budget (OMB) for review and comment. The ICR describes the nature of the information collection and its expected burden. The **Federal Register** notice with a 60-day comment period soliciting comments on the following collection of information was published on September 2, 2004 (69 FR 53765).

**DATES:** Comments must be submitted on or before December 13, 2004.

**FOR FURTHER INFORMATION CONTACT:** Mr. Robert Brogan, Office of Safety, Planning and Evaluation Division, RRS-21, Federal Railroad Administration, 1120 Vermont Ave., NW., Mail Stop 25, Washington, DC 20590 (telephone: (202) 493-6292), or Ms. Debra Steward, Office of Information Technology and Productivity Improvement, RAD-20, Federal Railroad Administration, 1120 Vermont Ave., NW., Mail Stop 35, Washington, DC 20590 (telephone: (202) 493-6139). (These telephone numbers are not toll-free.)

**SUPPLEMENTARY INFORMATION:** The Paperwork Reduction Act of 1995 (PRA), Pub. L. No. 104-13, Section 2, 109 Stat. 163 (1995) (codified as revised at 44 U.S.C. 3501-3520), and its implementing regulations, 5 CFR part 1320, require Federal agencies to issue two notices seeking public comment on

information collection activities before OMB may approve paperwork packages. 44 U.S.C. 3506, 3507; 5 CFR 1320.5, 1320.8(d)(1), 1320.12. On September 2, 2004, FRA published a 60-day notice in the **Federal Register** soliciting comment on ICRs that the agency was seeking OMB approval. 69 FR 53765. FRA received no comments in response to this notice.

Before OMB decides whether to approve these proposed collections of information, it must provide 30 days for public comment. 44 U.S.C. 3507(b); 5 CFR 1320.12(d). Federal law requires OMB to approve or disapprove paperwork packages between 30 and 60 days after the 30 day notice is published. 44 U.S.C. 3507 (b)-(c); 5 CFR 1320.12(d); *see also* 60 FR 44978, 44983, Aug. 29, 1995. OMB believes that the 30 day notice informs the regulated community to file relevant comments and affords the agency adequate time to digest public comments before it renders a decision. 60 FR 44983, Aug. 29, 1995. Therefore, respondents should submit their respective comments to OMB within 30 days of publication to best ensure having their full effect. 5 CFR 1320.12(c); *see also* 60 FR 44983, Aug. 29, 1995.

The summary below describes the nature of the information collection requirement (ICR) and the expected burden, and is being submitted for clearance by OMB as required by the PRA.

**Title:** Safety Appliance Concern Recommendation Report; Safety Appliance Standards Guidance Checklist Forms.

**OMB Control Number:** 2130-NEW.

**Type of Request:** New collection.

**Affected Public:** Businesses.

**Abstract:** In an ongoing effort to conduct more thorough and more effective inspections of railroad freight equipment and to further enhance safe rail operations, FRA has developed a safety concern recommendation report form, and a group of guidance checklist forms that will facilitate railroad, rail car owner, and rail equipment manufacturer compliance with agency Railroad Safety Appliance Standards regulations. In lieu of completing an official inspection form (FRA F 6180.96), which takes subject railroad equipment out of service and disrupts rail operations, proposed new Form FRA F 6180.4a will enable Federal and State safety inspectors to report to agency headquarters systemic or other safety concerns. FRA headquarters safety specialists can then contact railroads, car owners, and equipment manufacturers to address the reported issue(s) in a timely fashion without

unnecessarily having to take affected rail equipment out of service, unless deemed defective. Proposed forms FRA F 6180.4(b)-(m) will be used in conjunction with the Special Inspection of Safety Appliance Equipment form (Form FRA F 6180.4) to assist Motive, Power, and Equipment (MP&E) field inspectors in ensuring that critical sections of 49 CFR part 231 (Railroad Safety Appliance Standards), pertaining to various types of freight equipment, are complied with through the use of a check-off list. By simplifying their demanding work, check-off lists for 12 essential sections of part 231 will ensure that FRA MP&E field personnel completely and thoroughly inspect each type of freight car for compliance with its corresponding section in part 231. The proposed Guidance Checklist forms may later be used by state field inspectors as well. FRA believes that the proposed collection of information will result in improved construction of newly designed freight cars and improved field inspections of all freight cars currently in use. This, in turn, will serve to reduce the number of accidents/incidents and corresponding injuries and fatalities that occur every year due to unsafe or defective equipment that was not promptly repaired/replaced.

**Annual Estimated Burden Hours:** 240 hours.

**Addressee:** Send comments regarding this information collection to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 Seventeenth Street, NW., Washington, DC, 20503, Attention: FRA Desk Officer.

**Comments Are Invited on the Following:** Whether the proposed collection of information is necessary for the proper performance of the functions of the Department, including whether the information will have practical utility; the accuracy of the Department's estimate of the burden of the proposed information collection; ways to enhance the quality, utility, and clarity of the information to be collected; and ways to minimize the burden of the collection of information on respondents, including the use of automated collection techniques or other forms of information technology.

A comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication of this notice in the **Federal Register**.

**Authority:** 44 U.S.C. 3501-3520.



reduce travel time and/or improve safety; (4) constructing a new highway on a new location between N.H. Route 111 and Interstate Route 93; and (5) combinations of these alternatives. Various designs of grade, alignment, geometry and access will be evaluated.

An Advisory Task Force will be established with representatives of NHDOT, the Rockingham Regional Planning Commission, and a committee of local officials.

Letters describing the proposed action and soliciting comments, will be sent to appropriate federal, state and local agencies, and to private organizations and citizens who have an interest in this proposal. Public information, community and Advisory Task Force meetings will be held in the study area as the project progresses in order to include public input in the planning process. A public hearing will be held following distribution of the Draft Environmental Impact Statement (DEIS). Public notice will be given regarding the time and location of this hearing. The DEIS will be available for review and comment by the public and interested agencies.

A formal scoping meeting will be held from 2-5 p.m. on September 20, 1990, at the Windham Town Hall to help establish the study framework and the impacts to be analyzed. Study area resources now being analyzed include the natural environment (farmland, forestland, wetlands, floodplains, surface water and water supply resources, wild and scenic rivers, terrestrial and aquatic resources, threatened and endangered species, public conservation lands and parklands, geology, soils, topography and hazardous wastes), the social environment (land use, population, employment, economic development and community facilities), and cultural environment (historic and archeological resources), and the transportation network. Agencies to be invited to be cooperating agencies are the Environmental Protection Agency, the U.S. Army Corps of Engineers, the New Hampshire State Historic Preservation Office and the New Hampshire Wetlands Board.

Comments and suggestions are invited from all interested parties to ensure that

the full range of issues related to this proposed action is addressed and all significant issues are identified. Comments or questions concerning this proposed action should be directed to the FHWA or the NHDOT at the addresses provided above.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on federal programs and activities apply to this program)

Issued on August 24, 1990.

Vincent F. Schimmoller,  
Division Administrator, Concord, New Hampshire.

[FR Doc. 90-20484 Filed 8-29-90; 8:45 am]

BILLING CODE 4910-22-M

#### Environmental Impact Statement: San Bernardino County, CA

**AGENCY:** Federal Highway Administration (FHWA), DOT.

**ACTION:** Notice of Intent.

**SUMMARY:** The FHWA is issuing this notice to advise the public that an environmental impact statement will be prepared for a proposed highway project in San Bernardino County, California.

**FOR FURTHER INFORMATION CONTACT:** Ms. Susan Klekar, District Engineer, Federal Highway Administration, P.O. 1915, Sacramento, California 95812-1915. Telephone: (916) 551-1307.

**SUPPLEMENTARY INFORMATION:** The FHWA, in cooperation with the California Department of Transportation, will prepare an environmental impact statement for the proposed Big Bear Lake Dam Bridge Replacement Project on State Route 18 in San Bernardino County, California. The proposed project will facilitate completion of the Big Bear dam spillway, move vehicular traffic off the dam structure, and improve the geometrics of the approach roadways. Existing Route 18 with the project limits has curves where the posted speed limit is less than 25 miles per hour. These curves could be realigned and the overall roadway, including the proposed bridge, could be widened from two to

four lanes. Consultation with the U.S. Forest Service will be undertaken to minimize impacts to the surrounding San Bernardino National Forest caused by project construction.

Alternatives currently under consideration include: No action; place new bridge on the existing dam; construct new bridge downstream; and construct a new bridge crossing over Big Bear Lake. There are design variations for each of the proposed alternatives that offer different treatments for the approach roadway, such as realigning curves or leaving them as is.

Letters describing the proposed action and soliciting comments will be sent to appropriate Federal, State, and local agencies, and to private organizations and citizens who have previously expressed or are known to have an interest in this proposal. A formal agency scoping meeting was held June 5, 1990, in the City of Big Bear Lake, California. A public meeting was held July 90, 1990, also in the City of Big Bear Lake. In addition, a series of interviews and other public meetings will be held. The public information program will continue throughout the environmental process.

The draft EIS will be available for public and agency review and comment prior to the public hearing.

To ensure that the full range of issues related to this proposed action are address, and all significant issues are identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS should be directed to the FHWA at the address previously provided in this document.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Research, Planning, and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation of Federal Programs and activities apply to this program)

Issued on: August 6, 1990.

Jeffrey S. Lewis,  
Acting District Engineer, Sacramento, California.

[FR Doc. 90-20493 Filed 8-29-90; 8:45 am]

BILLING CODE 4910-22-M

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION

DISTRICT 8, P.O. BOX 231  
SAN BERNARDINO, CALIFORNIA 92402  
TDD (714) 383-4609



NOTICE OF PREPARATION

TO: Responsible/Cooperating Agencies

FROM: Caltrans, District 8  
3560 University Avenue  
Suite 300  
Riverside, CA 92501

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report/Environmental Impact Statement (References: Division 13, Public Resources Code, Section 21080.4 (State); 40 C.F.R. 1501.7 and 1508.22 (Federal))

This is to inform you that the California Department of Transportation, in cooperation with the FHWA, will be the Lead Agency and will prepare an EIR/EIS for the proposed Big Bear Dam Bridge replacement project on State Route 18 in San Bernardino County (see attached project description). Your participation as a responsible/cooperating agency is requested in the preparation and review of this document. The Notice of Intent for the proposed project was published in the Federal Register on August 30, 1990.

We need to know the applicable permit and environmental review requirements of your agency and the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR/EIS prepared by our agency when considering your permit or other approval for the project.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date but not later than 45 days after receipt of this notice.

Please send your response and direct any comments or questions regarding this project to Christina L. Andersen at the following address: Michael Brandman Associates, 2530 Red Hill Avenue, Santa Ana, California, 92705 (telephone: (714) 250-5555). Please provide us with a contact person in your agency.

Date: January 15, 1991

Signature:

*David C. Parra*  
David C. Parra, Chief  
Environmental Oversight Branch

ksk:08650002

UNITED STATES Forest San Bernardino 1824 So. Commercenter Circle  
DEPARTMENT OF Service National Forest San Bernardino, CA 92408-3430  
AGRICULTURE

Reply To: 1950

Date: November 30, 1993

Roger Borg  
Division Administrator  
Federal Highway Administration  
980 9th Street, Suite 400  
Sacramento, CA 95814-2724

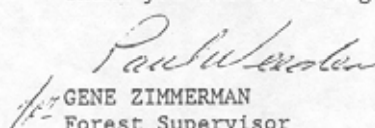
DEC 02 1993  
HWA-Sacramento

Dear Mr. Borg:

This is in response to your letter to our Regional Office requesting that the United States Forest Service become a cooperating agency for the Environmental Impact Statement/Environmental Impact Report for the Big Bear Dam Bridge replacement project.

We are pleased to be a designated cooperating agency for the project. We have regularly participated in the planning meetings and would like to continue doing so. Our local contacts for the project are Forest Engineer Mike Florey, (909) 884-6634 extention 3170, and Big Bear District Lands Officer George Kenline, (909) 866-3437.

Thank you for involving the Forest Service in this project.

  
GENE ZIMMERMAN  
Forest Supervisor

cc: V. Usher, Region 5





## United States Department of the Interior

FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES  
Carlsbad Field Office  
2730 Loker Avenue West  
Carlsbad, California 92008

January 5, 1994

Roger Borg  
California Division Administrator  
Federal Highway Administration  
980 9th Street, Suite 400  
Sacramento, California 95814-2724

Attn: Leonard E. Brown, Chief Operations District C

Re: 8-SBD-18, PM 44.2/44.7, Big Bear Lake; Request to be Cooperating Agency  
in EIS Preparation for Replacement of SR-18 Bridge over Bear Valley Dam,  
San Bernardino County, California

Dear Mr. Borg:

The Fish and Wildlife Service (Service) would be pleased to be a cooperating agency in the preparation of the federal environmental impact statement (EIS) on the subject bridge replacement and highway realignment project. However, given our staffing constraints we would require assurance of adequate transfer funding to provide staffing for our appropriate level of involvement, and for expenses such as those entailed in attending meetings.

It would assist us in estimating what that level of funding might be if you could provide us with any preliminary plans and narrative description of alternatives and environmental documentation that have thus far been developed, as well as the results of the scoping process to date, and your projected schedule for EIS preparation and plans for involvement of cooperating agencies during that preparation.

The Service would require that we be provided the opportunity for pre-publication review of the draft and final EIS if we are to be listed as cooperating agencies in the preparation of those documents.

If you have questions concerning the Service's participation as a cooperating agency on this project, please contact James Applegate of my staff at (619) 431-9440.

Sincerely,

Gail C. Kobetich  
Field Supervisor



STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, Governor

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SANTA ANA REGION**

2010 IOWA AVENUE, SUITE 103  
RIVERSIDE, CA 92507-2409  
PHONE (909) 782-4130  
FAX (909) 781-6388



February 7, 1994

Paul Gonzales, Chief of Environmental Studies  
Department of Transportation, District 8  
P.O. Box 231  
San Bernardino, CA 92402

**CALIFORNIA DEPARTMENT OF TRANSPORTATION'S REQUEST FOR THE REGIONAL  
WATER QUALITY CONTROL BOARD TO BE A RESPONSIBLE AGENCY**

Dear Mr. Gonzales:

The Regional Water Quality Control Board - Santa Ana Region (Regional Board) has received your letter, dated September 30, 1993, requesting us to be a Responsible Agency for the Big Bear Bridge Replacement Project in San Bernardino County, California. The Regional Board is a Responsible Agency as stated in the California Environmental Quality Act (CEQA) Guidelines, Section 15381, and as such, carries the responsibilities described in this section. The Regional Board will, of course, be available for consultation on this project as a designated Responsible Agency. We will also aid your department in notifying you of the need for, and the acquisition of, necessary permits, such as NPDES permits and 401 Water Quality Certification.

If you have any further questions, please contact Michael Adackapara at (909) 782-3238 or me at (909) 782-4434.

Sincerely,

Wm. Dennis Merklin  
Water Resource Control Engineer  
Regulations Section

WDM/catran.RES

STATE OF CALIFORNIA—THE RESOURCES AGENCY

PETE WILSON, Governor

DEPARTMENT OF FISH AND GAME

330 GOLDEN SHORE, SUITE 50  
LONG BEACH, CA 90802  
(310) 590-5113



November 3, 1993

Mr. Paul Gonzales  
Department of Transportation  
District 8, P.O. Box 231  
San Bernardino, California 92402

Dear Mr. Gonzales:

The Department of Fish and Game (Department) has received your letter, dated September 30, 1993, requesting us to be a Responsible Agency for the Big Bear Bridge Replacement Project in San Bernardino County, California. The Department is a Trustee Agency as stated in the California Environmental Quality Act (CEQA) Guidelines, § 15386 and as such carries the responsibilities described in this section. The Department, of course, will be available for consultation on this project as a Trustee Agency but not as a Responsible Agency. Although the project may require a Streambed Alteration Agreement pursuant to Fish and Game Code § 1601, we do not have discretionary authority under this section. § 1601 requires an agreement and not a permit to be issued if the natural flow of the bed, channel or bank of any river, stream, or lake is diverted, obstructed or substantially changed.

If you have any further questions, please contact Ms. Lilia I. Martinez, Environmental Specialist III, at our Regional Office at 330 Golden Shore, Suite 50, Long Beach, California 90802, or by telephone at (310) 590-4830.

Sincerely,

A handwritten signature in dark ink, appearing to read "Fred Worthley".

Fred Worthley  
Regional Manager  
Region 5

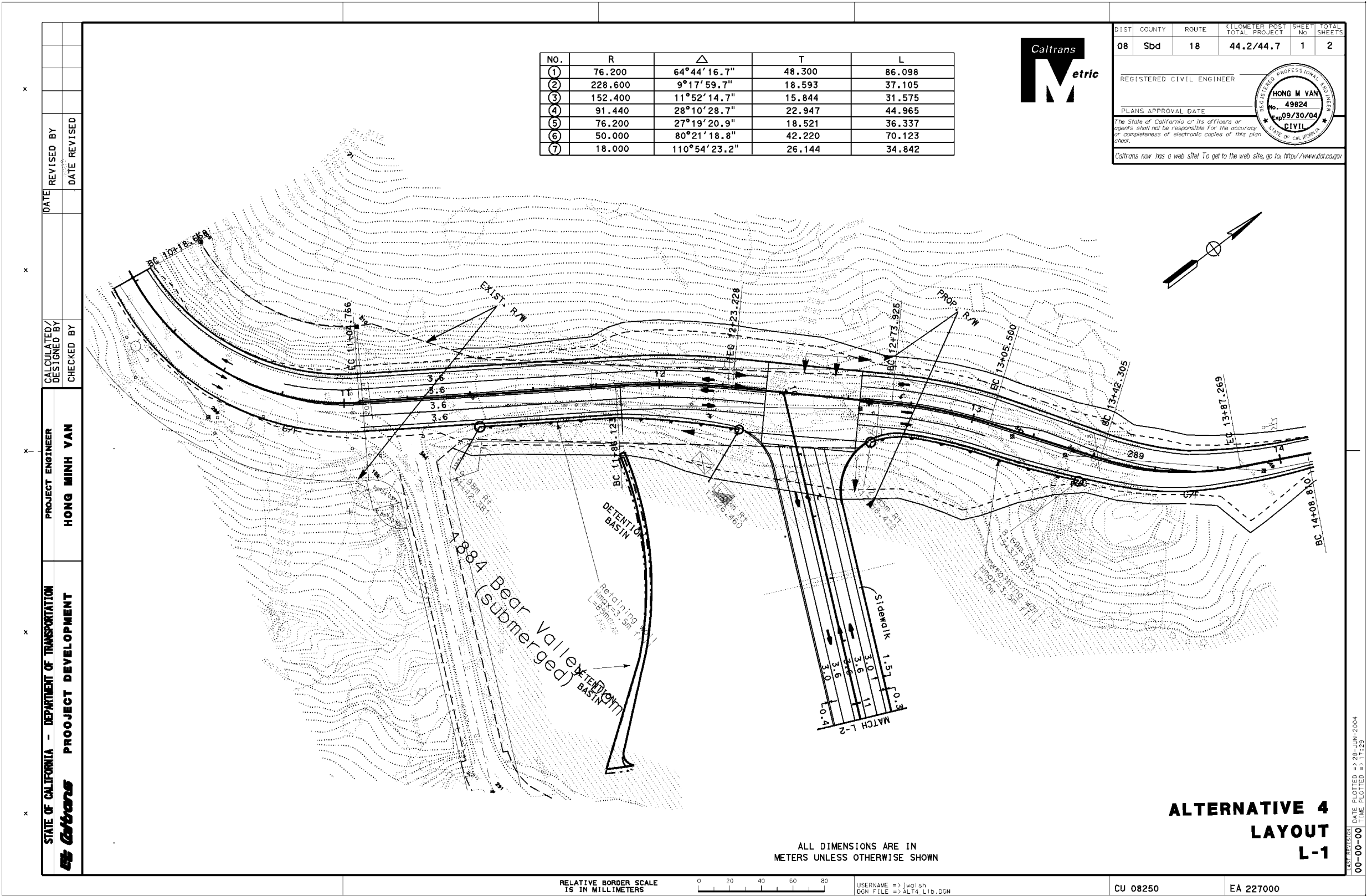
cc: Mr. Mike Giusti  
Department of Fish and Game  
Chino, California

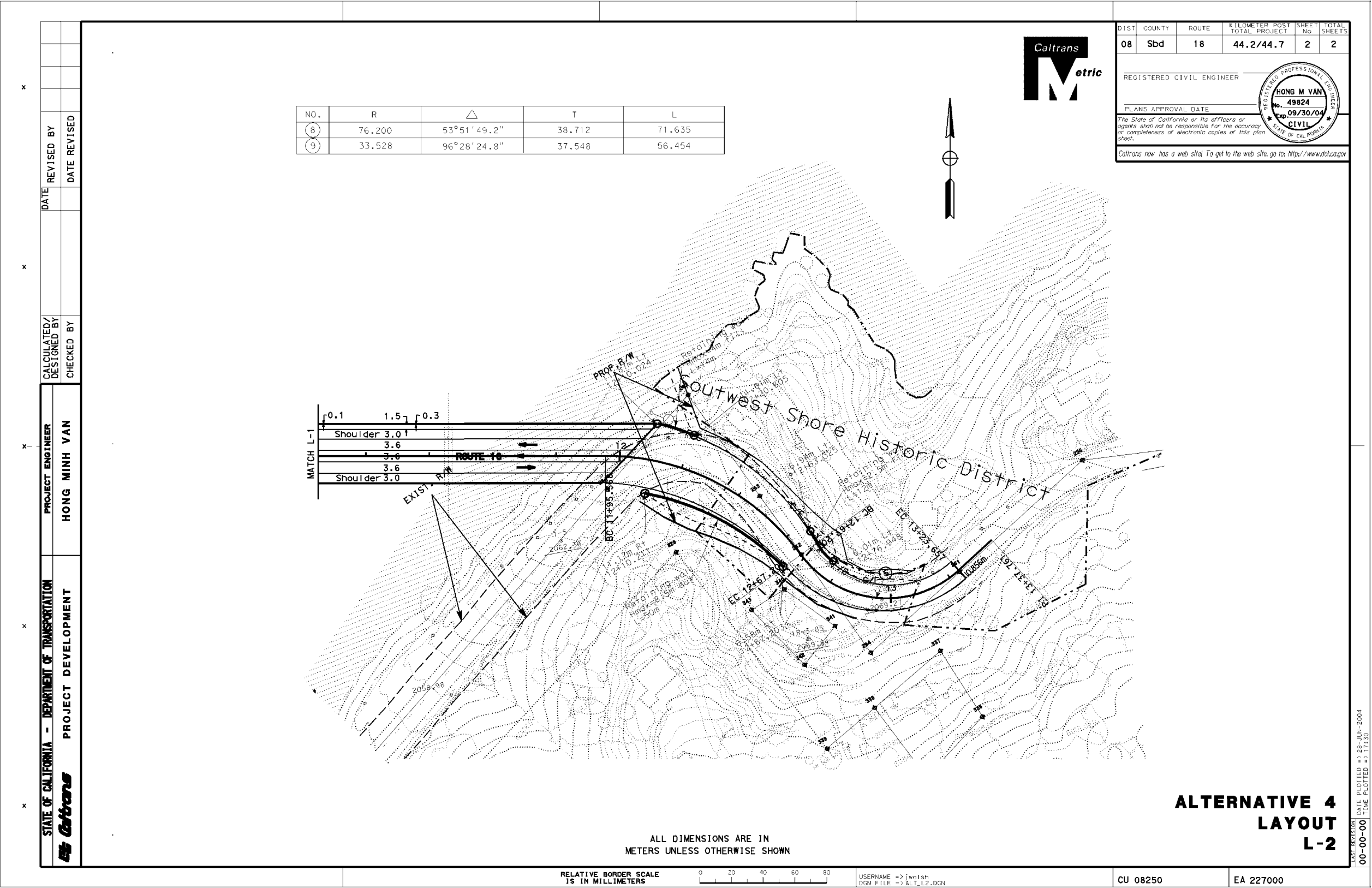
Mr. Kevin-Barry Brennan  
Department of Fish and Game  
Hemet, California



## **Appendix C** Preliminary Engineering Drawings

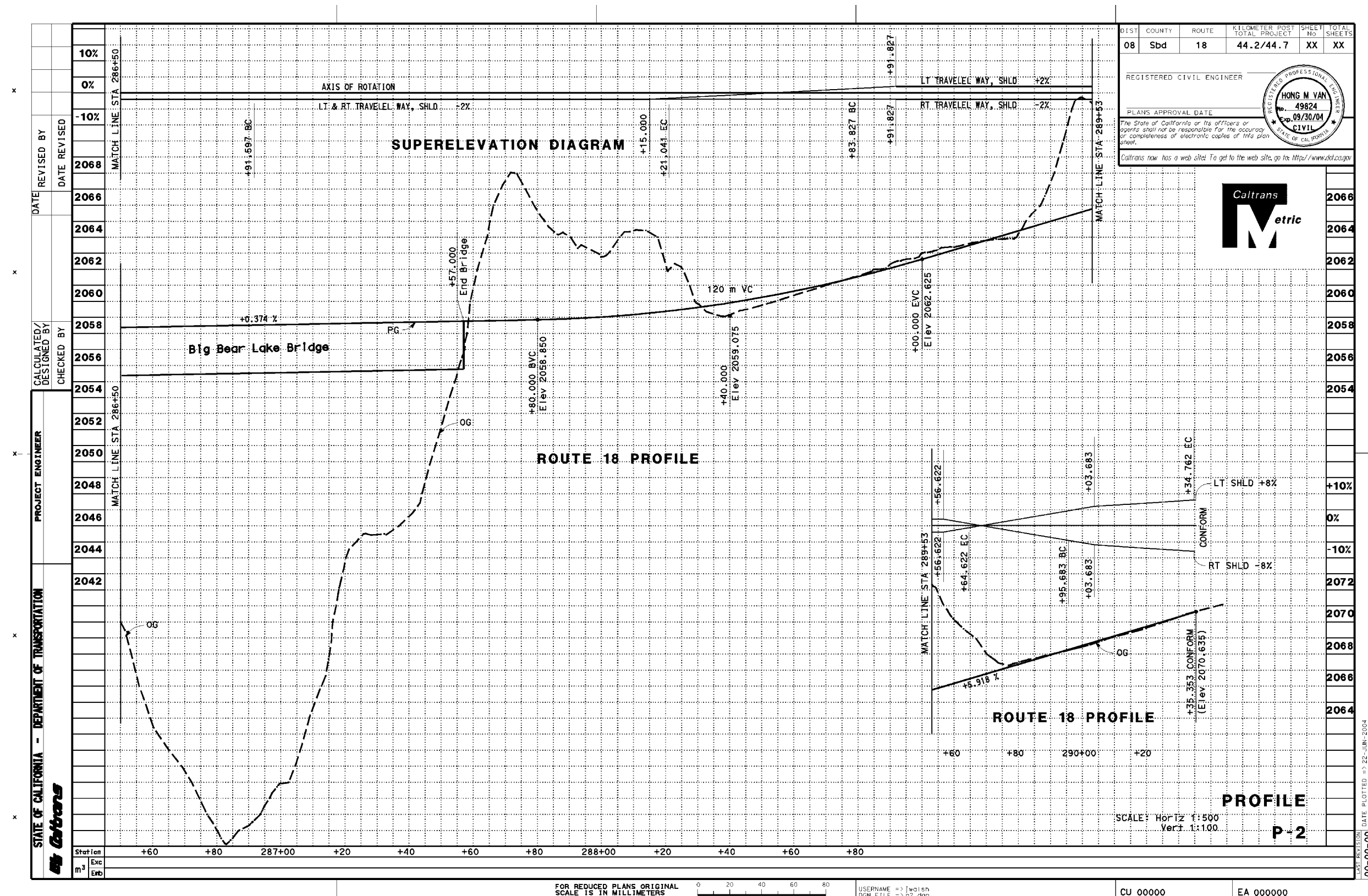
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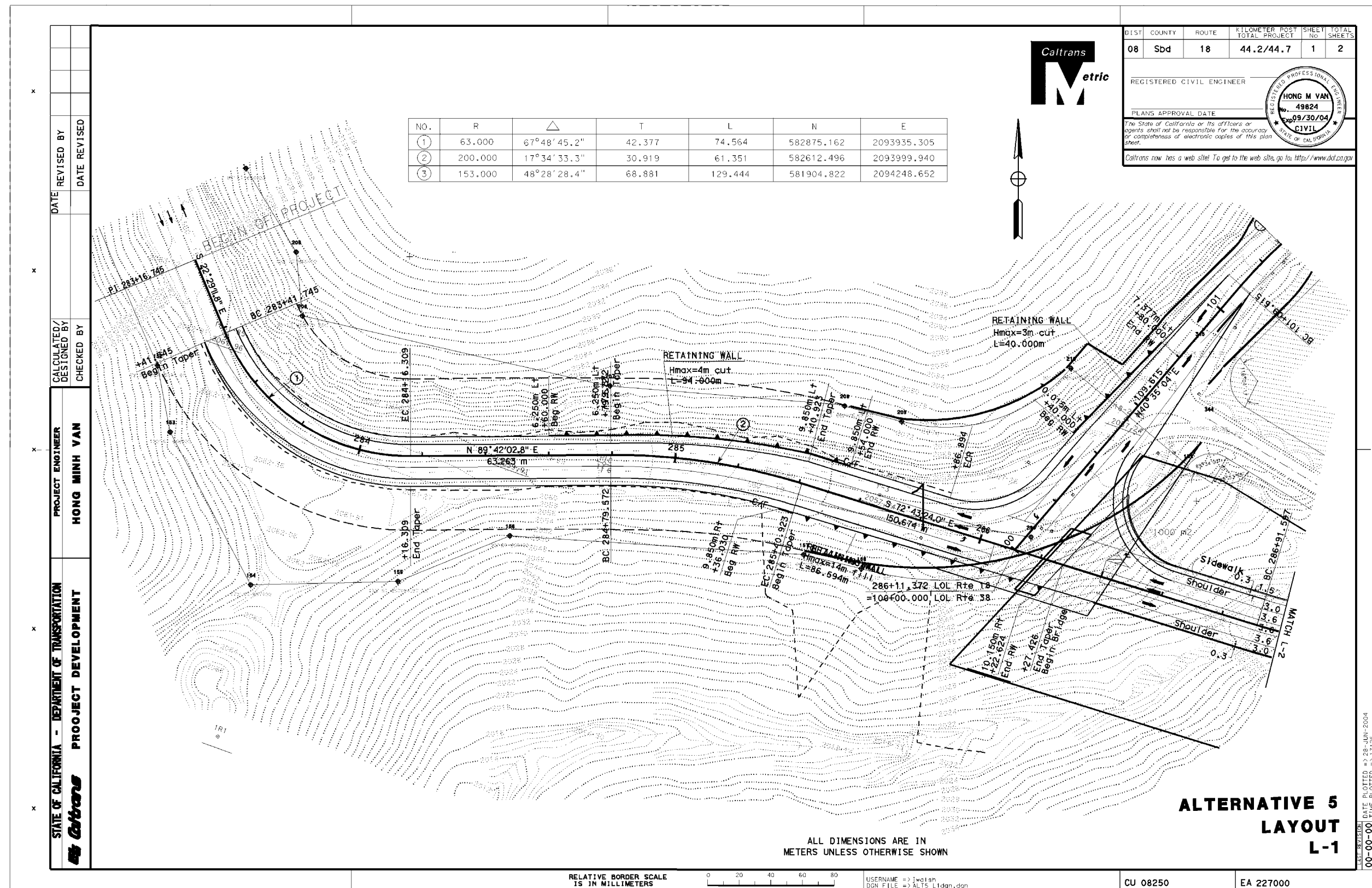


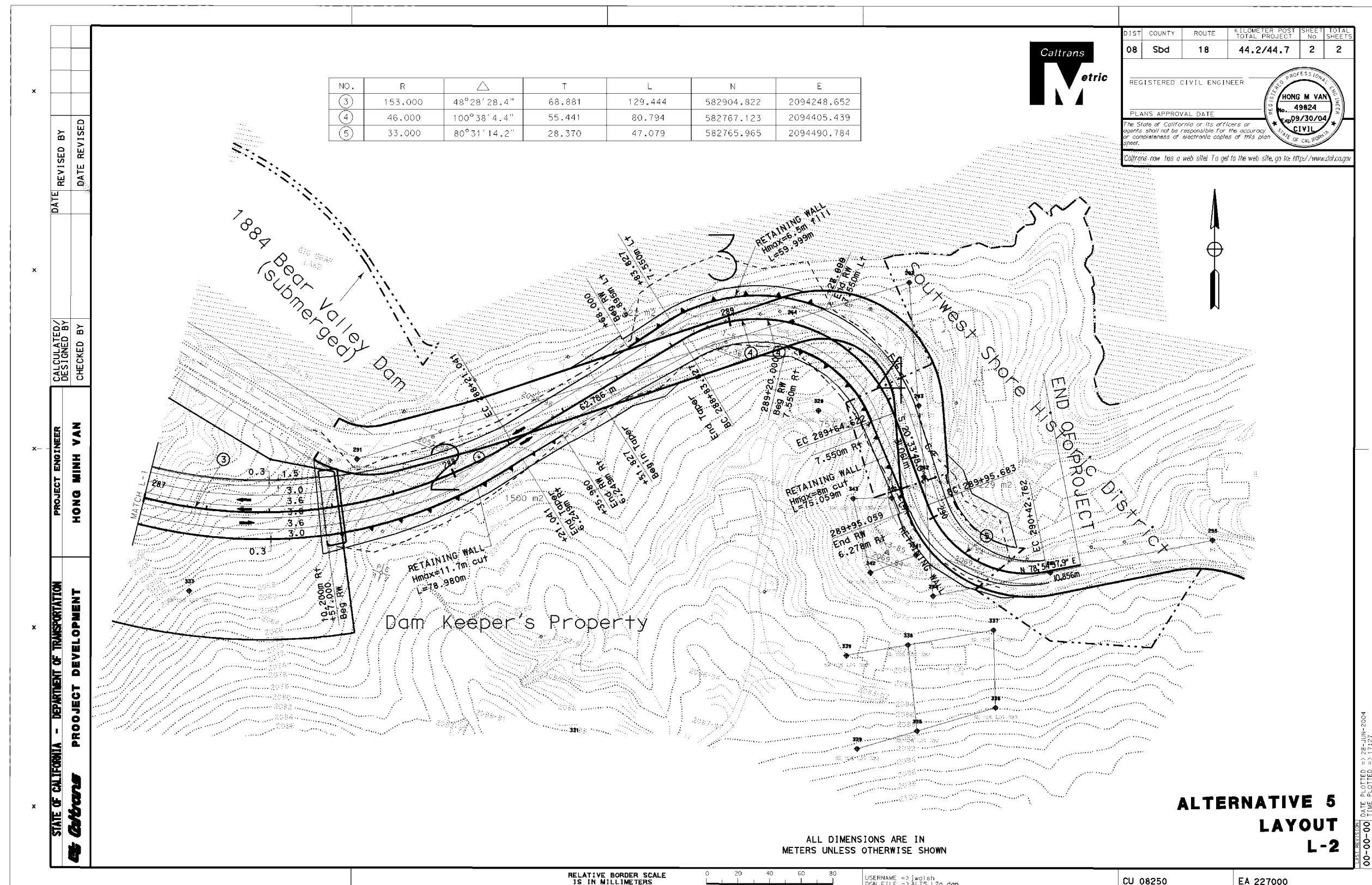


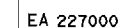




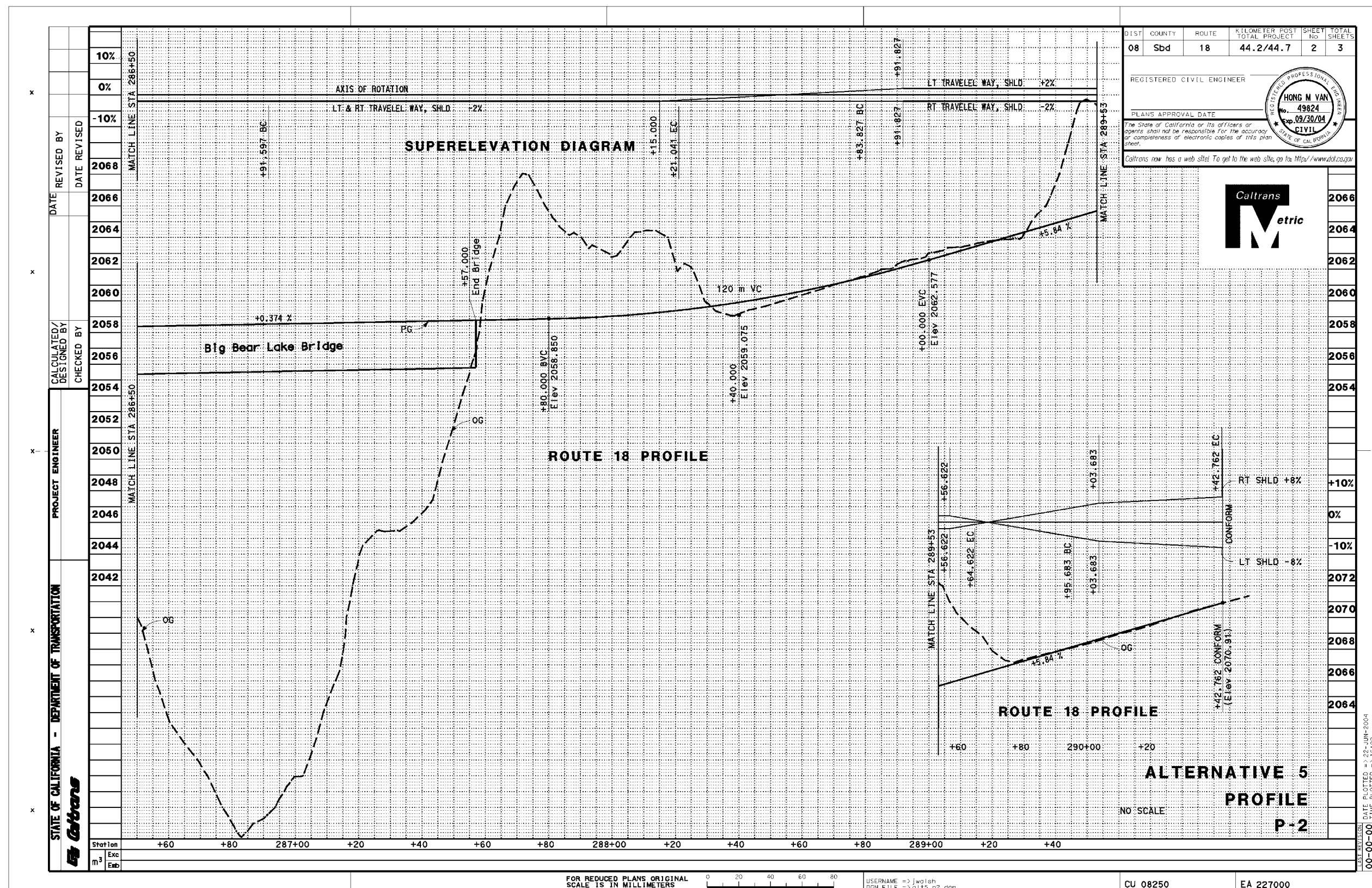


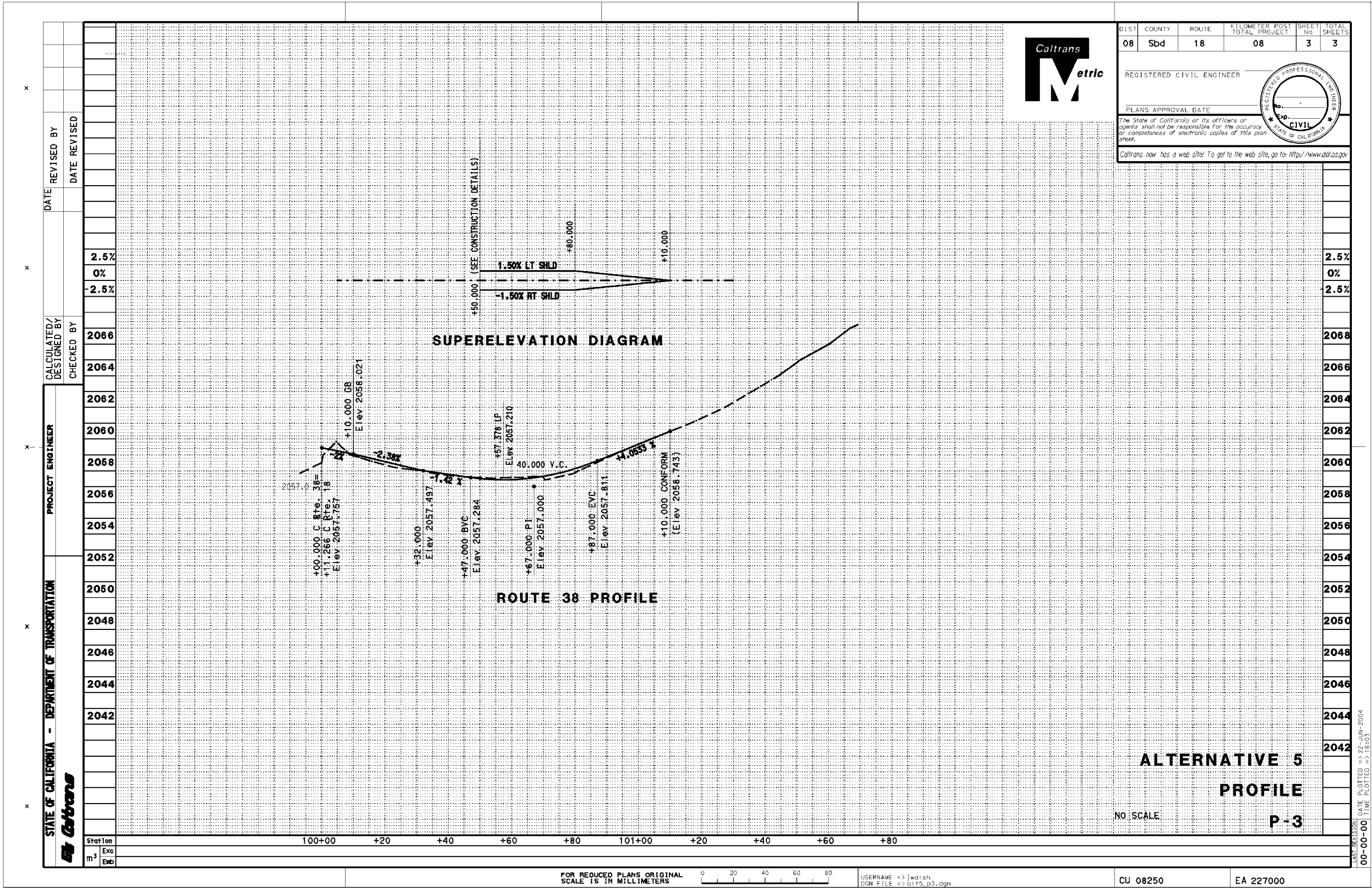
















# Appendix D Title VI Policy Statement

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STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD D. SCHWARZENEGGER, Governor

## DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR  
1120 N STREET  
P. O. BOX 942873  
SACRAMENTO, CA 94273-0001  
PHONE (916) 654-5266  
FAX (916) 654-6608  
TTY (916) 653-4086



*Flex your power!  
Be energy efficient!*

January 14, 2005

### TITLE VI POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in black ink, reading "Will Kempton".

WILL KEMPTON  
Director

*"Caltrans improves mobility across California"*



# **Appendix E** Conceptual Revegetation Plan

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## Big Bear Bridge Replacement Project – Restoration Plan

August 12, 2003

### Location:

All areas of National Forest System (NFS) lands that experience direct or indirect surface disturbance as a result of implementation of the Big Bear Bridge Replacement project. Depending on the alternative selected, this area will be located east and west of the Big Bear Lake dam and existing bridge. Staging areas, borrow pits, and other areas of surface disturbance on NFS land associated with this project, irrespective of location, are subject to restoration.

### Objectives:

1. To restore native vegetation structure and function to disturbed sites by initiating a successional trajectory toward mature, undisturbed, adjacent structure and function. Restoring vegetation function includes returning the site to habitat suitable for native wildlife.
2. To restore the visual quality of the NFS lands disturbed by the project.
3. To prevent soil loss, erosion, and safety concerns by stabilizing slopes affected by the project.
4. To prevent the introduction and/or spread of non-native species.

### Site Preparation for Restoration:

1. At the onset of construction, and wherever possible/appropriate, topsoil and exposed rock and boulders should be salvaged and stockpiled using methods that preserve the seedbank, microbiota, and lichen flora. Soil supporting moderate to high densities non-native invasive species should not be salvaged and stockpiled for restoration.
2. At the onset of restoration, soil, rock, and boulders should be placed on disturbed surfaces. This should occur as early as possible to minimize the duration of stockpiling.
3. The restoration areas should be prepared to minimize erosion (e.g., contouring, water bars, etc.), and with a rough non-compacted surface conducive to catchment of seed and rain.
4. The restoration area should be free of non-native invasive species prior to planting.

### Planting Palette:

A species list will be prepared in coordination with the SBNF to emulate the species composition of adjacent vegetation with similar soil, slope and aspect. All plant material used for restoration will be locally collected.

### Timing and Methodology:

1. Planting should occur in the fall; optimal timing is immediately before the first substantial precipitation of the wet season.

2. The planting palette should be composed of a mixture of directly-seeded early-successional species with container plantings of climax-dominant species.
3. All plant material must be locally-collected.
4. Container plantings should have a high root:shoot ratio (*e.g.* deep gallon containers, cells, etc.). Container plants should be planted into deep watered holes and mulched to minimize the need for subsequent supplemental watering.
5. Irrigation and/or fertilization should not be used.
6. Where needed for erosion control, only lizard-safe geotextile should be used. Light mulching with locally-appropriate weed-free material is preferable.

Maintenance and Monitoring:

1. Implementation, including site preparation and planting should be monitored by a qualified biologist/botanist to ensure and document that the restoration plan is followed.
2. Restoration sites should be visited annually by a qualified biologist/botanist during the late spring or early summer months to record the following:
  - a. container plant survival
  - b. seed germination
  - c. non-native species presence
  - d. soil loss / erosion
3. Annual maintenance should include replacement of dead container plants, weeding of non-native species, and remediation of erosion as needed.

Success Criteria:

After generally 10 years\*\*, including three years (*e.g.* years 8, 9, and 10) without manipulation (supplemental planting, weeding, watering, etc), the following criteria must be met:

1. Native plant cover must achieve 50% of the cover observed\* on adjacent areas of undisturbed vegetation with similar slope, aspect and soils.
2. Native plant species richness must be 50% of the richness observed\* on adjacent areas of undisturbed vegetation with similar slope, aspect and soils.
3. Density of three native climax-dominant species must be 50% that observed\* on adjacent areas of undisturbed vegetation with similar slope, aspect and soils.
4. Non-native species cover must not exceed 15%. This includes widespread non-natives such as cheatgrass.
5. No invasive-exotic species are present. This includes species with eradication goals such as tamarix, Spanish broom, and Dalmatian toadflax.
6. No substantial active erosion is occurring, including progressive/increasing rilling, gullies, etc.

Remediation Requirements:

Corrective measures should be taken as soon as problems are identified by annual monitoring that could prevent meeting any of the above success criteria. Any remediation needed after the Interim Report extends the total time needed to meet success criteria by resetting the 3-year no-manipulation period.

Reporting:

The qualified biologist/botanist must prepare and submit three monitoring reports to Caltrans and SBNF:

1. Initial Report: Prepared after the Year-1 monitoring. Describes the initial implementation, and includes description of site preparation; topsoil, rock, and boulder placement; planting palette; an implementation calendar; and first year monitoring observations. This report also includes the results of adjacent vegetation monitoring and the associated numerical values of success criteria. Includes photodocumentation of the restoration site and adjacent reference site.
2. Interim Report: Generally prepared after the Year-7 monitoring, but may be earlier\*\*. If additional remediation requirements are identified by the Year-7 annual monitoring, the Interim Report would be postponed until these are completed. This report marks the beginning of the 3-year no-manipulation period. Includes measures of cover, richness, density, and non-native species cover and presence. Includes descriptions of remediations performed to date. Also includes a full species list for the restoration site and observations of wildlife use, and photodocumentation of the restoration site.
3. Final Report: Generally prepared after the Year-10 monitoring, but may be earlier or later. Marks satisfaction of all success criteria and completion of the restoration project. Includes a summary of all annual monitoring findings, includes measures of each success criterion. Also includes a final complete species list for the restoration site and all observations of wildlife use. Includes final photodocumentation. Initial and Interim reports are attached as appendices. The Final Report will be provided to the SBNF as a draft, and a concurrence letter from the SBNF will be attached to the Final.

\* Observations include quantitative vegetation sampling, to be performed in coordination with the SBNF, of comparable adjacent vegetation.

\*\* The standard 10-year period can be condensed by up to 4 years if success criteria can be achieved after a 3-year no-manipulation period. In the most abbreviated case, the Interim Report would be prepared after the Year-3 monitoring, and the Final Report after the Year-6 monitoring.





# **Appendix F    Draft 4(f) Evaluation**

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## **DRAFT SECTION 4 (f) EVALUATION FOR THE BIG BEAR BRIDGE (#54-0130) REPLACEMENT ON STATE ROUTE 18 KILOPOST 77.1-77.9 (POSTMILE 44.2-44.7)**

### **1.0 Introduction to Section 4(f)**

This document is submitted in accordance with and pursuant to 42 U.S.C. 4332(2)(c) and 49 U.S.C. 303.

Section 4(f) of the Department of Transportation Act of 1966, codified in Federal law, 49 U.S.C. section 303, declares that “[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the country side and public park and recreation lands, wildlife and water fowl refuges, and historic sites.”

Section 4(f) specifies “[t]hat Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national , State, or local significance, or land of an historic site of national, State or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge or site) only if-

- (1)     there is no prudent and feasible alternative to using that land; and
- (2)     the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.”

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs, which use lands protected by section 4(f).

In general, a Section 4(f) “use” occurs with a Department of Transportation –approved project or program when 1) Section 4(f) land is permanently incorporated into a transportation facility; 2) there is a temporary occupancy of Section 4(f) land that is adverse in terms of the Section 4(f) preservationist purposes as determined by specified criteria (23 CFR 771.135 [p][7]); or 3) Section 4(f) land is not incorporated into the transportation project, but the project’s proximity impacts are so severe that the protected

activities, features or attributes that qualify a resource for protection under 4(f) are substantially impaired (constructive use; 23CFR 771.135(p)(1) and (2)). Consultation with the Department of Agriculture (USDA) would occur whenever a project uses Section 4(f) land from the National Forest System.

## **2.0 Description of Proposed Project Purpose, Action and Alternatives**

### **2.1 Purpose and Need**

The Federal Highway Administration and the California Department of Transportation (Department) propose to replace the Big Bear Lake dam bridge (Bridge #54-0310). In addition to the replacement of the bridge the project will also include widening and signalizing the intersection of State Routes 18 and 38, minor realignment of the roadway and removing the existing bridge subsequent to completion of the replacement structure. Removal of the existing bridge would allow the Big Bear Municipal Water District to complete spillway and outlet work improvements that would minimize/prevent lakeshore flooding. (see Chapter 1: Purpose and Need, of the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R).

The purpose of the proposed project is to provide structurally sound and operationally efficient access across Bear Creek Canyon or Big Bear Lake. The proposed project would: 1) replace the existing bridge that is structurally degraded and functionally obsolete; 2) realign and widen the approach roadways to improve the operation of the roadway during peak seasonal and commute traffic hours as well as increase the sight distance; and 3) signalize the intersection of State Routes 18 and 38 to improve traffic circulation and minimize traffic accidents at the intersection. The Department has determined that three lanes are required for all alternatives to improve channelization at SR 18/38 intersection to minimize traffic back-up during peak travel times and to meet operational requirements for the 2028 design year.

Removing the existing bridge from on top of the dam would facilitate the planned BBMWD spillway and outlet works improvements.

The Department's Division of Structures determined it is not practicable to construct the a new bridge over the existing dam because it would not meet seismic requirements and would require substantial modification to the surrounding roadways for approximately 1 mile in all directions. This alternative would also require SR-18 and SR-38 to be closed to traffic within the project area for the proposed two to three year construction period. Letter responses during the scoping process in 1990 indicated this would be an

unmitigable adverse effect on emergency services as well as the local economy. This alternative was subsequently dropped from consideration. Additionally the existing bridge is functionally obsolete, the operational capacity of the intersection has been exceeded, its design features are severely out of date and the deterioration of the superstructure has progressed so that it is no longer economically practicable to continue with bridge rehabilitation (see “Chapter 1 Purpose and Need, Section 1.2 Project Need” of this DEIS/R).

A replacement structure at a new location would allow the Big Bear Municipal Water District (BBMWD) to complete spillway and outlet works improvements to prevent/minimize lakeshore flooding as directed by the Division of Safety of Dams. The spillway and outlet work design identified in the EIR for the seismic retrofit of the dam identifies the use of lift gates, which require 5 meters (17 feet) of clearance as the preferred alternative. This would require a replacement structure to have greater than 5 meters (17 feet) of clearance above the existing bridge.

## **2.2 Proposed Alternatives**

As previously discussed within this Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R), the Department initially worked on a joint project in coordination with the BBMWD to replace the existing bridge. However, this effort could not proceed due to the time constraints for the Department to obtain environmental approval. In 1987, BBMWD completed an Environmental Impact Report (EIR) for their proposed project and corrected the seismic deficiencies by mass gravity infilling in 1988. In 1989, the Department initiated the studies for the proposed bridge replacement project. During early phases of the development process, the Department developed four build alternatives and two avoidance alternatives and the No Action/No Build Alternative. These alternatives included the following:

- Alternative 1 - The No action/No build alternative which would maintain the status quo;
- Alternative 2 - Replace the existing bridge with a new bridge on or elevated over the Big Bear Dam (see Chapter 2; Section 2.2.2, Figure 2-13 of the DEIS/R);
- Alternative 3 - Replace the existing bridge with a new bridge downstream of the dam and on a straight alignment with a cut or tunnel through the hill side (see Chapter 2; Section 2.2.3, Figure 2-14 of the DEIS/R)

- Alternative 4 - Replace the existing bridge with a new bridge crossing the lake (see Chapter 2; Section 2.2.4, Figure 2-15 of the DEIS/R);
- Alternative 5 - Replace the existing bridge with a new bridge downstream of the dam on a skewed alignment, rejoining existing SR-18 near the end of the existing dam. This alternative has changed very little with the exception of the improvements to the approach roadways (see Chapter 2; Section 2.2.5 Figure 2-16 of the DEIS/R);
- Avoidance Cut Alternative – Replace the existing bridge with a new bridge downstream of dam and proposed Alternative 5. This alternative would cut through the mountain and go south of the Dam Keeper’s Property and rejoin SR-18 outside of the South Shore Historic District. This alternative would not have a use of any of the Section 4(f) properties (see Figure 2-1); and
- Avoidance Tunnel Alternative – This alternative would be on the same alignment as the other alternative but would tunnel through the mountain instead of cutting through the mountain (see Figure 2-2).

In April of 1990 the Department initiated an agency and public scoping process. The purpose of this process was to elicit input on the proposed project and the alternatives described above. The objectives of the scoping process were to identify the concerns and requirements of public agencies and individuals potentially affected by the project, and to present the proposed alternatives and resources identified for consideration within the environmental studies. As a result of the scoping process, Alternatives 2 and 3 were dropped and Alternatives 4 and 5 were modified in response to comments and suggestions from other agencies and the public. The alternatives that have been withdrawn from consideration are discussed in Chapter 2; Section 2.2 of the DEIS/R. The modified versions of Alternatives 4 and 5 are evaluated as the build alternatives in the DEIS/R and are described in detail in Chapter 2; Section 2.1 of the DEIS/R. The No Action/No Build Alternative and Alternatives 4 and 5 are shown in Chapter 2; Section 2.1 Figures 2-1, 2-2 and 2-3 of the DEIS/R, respectively. The Avoidance alternatives are evaluated in this Section 4(f) Evaluation (see Figure 2-1 and 2-2 below). Unusual factors associated with the development of 4(f) avoidance alternatives are provided in Section 4.2.



Figure 2-1: Avoidance Cut Alternative

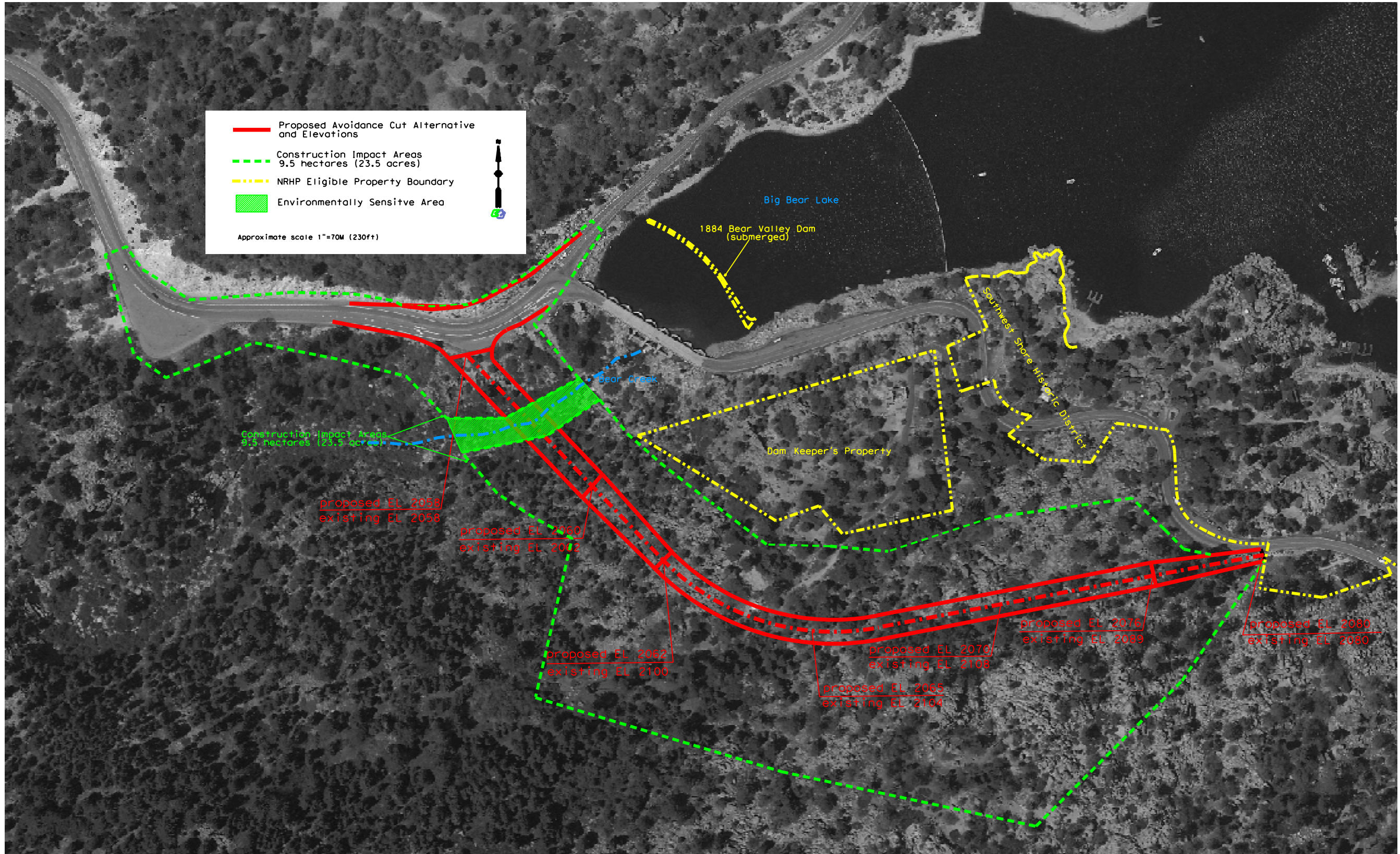
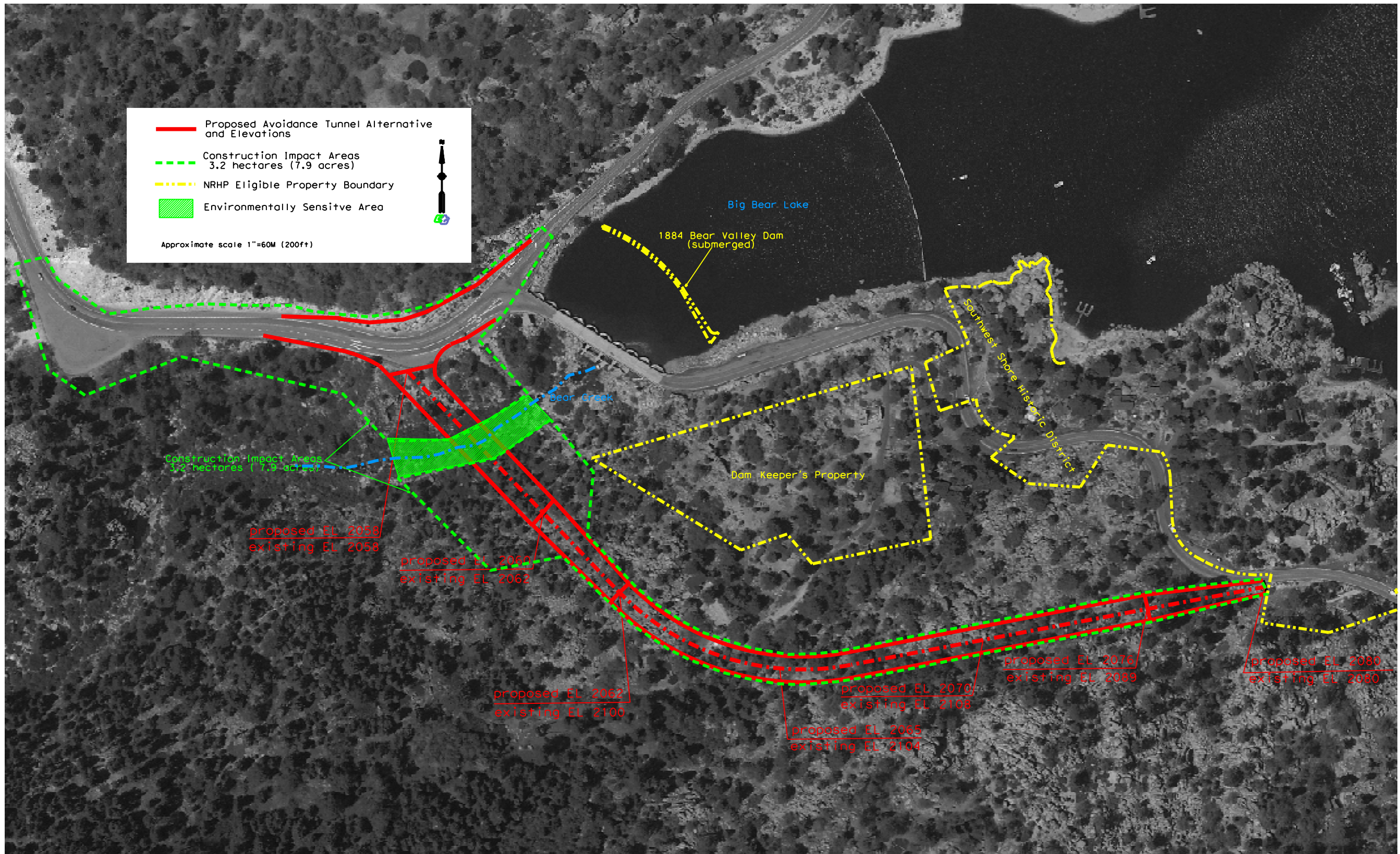




Figure 2-2: Avoidance Tunnel Alternative



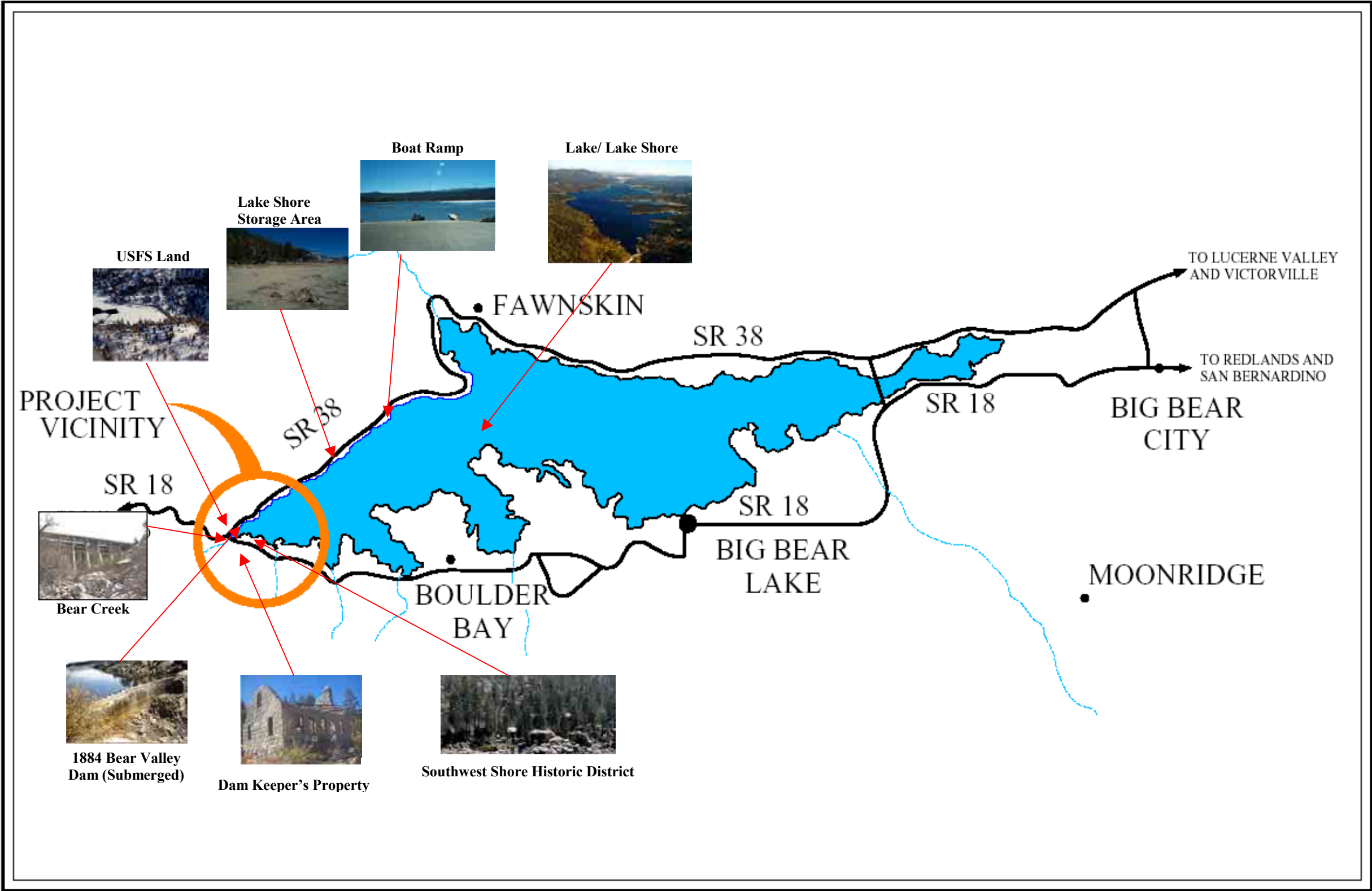
The USFS owns all of the land potentially impacted by the proposed project and does not prefer either of the avoidance alternatives when compared with the proposed build alternatives (see USFS letter in Attachment A).

### **3.0 Description of Section 4(f) Resources**

This evaluation discusses potential impacts associated with the proposed build alternatives to five resources that are eligible for consideration under Section 4(f). Each of these resources are discussed in detail in Sections 3.1-3.5 within this Draft 4(f) evaluation. A summary of the resources and their 4(f) eligibility is discussed below. The Dam Keeper's Property, Big Bear Lake Southwest Shore Historic District and the 1884 Bear Valley dam are eligible for listing on the National Register of Historic Places. The Big Bear Lake shoreline and Big Bear Lake itself are publicly owned resources, which function for significant recreational purposes. This evaluation also discusses properties that would be eligible for protection under 4(f) but are not impacted, as well as some nonsection 4(f) resources in Section 3.6. The approximate locations of each property discussed within this 4(f) evaluation are shown below in Figure 3-1.



Figure 3-1: Properties/Resources Discussed Within This 4(f) Evaluation



### **3.1 Dam Keeper's Property (DKP)**

The DKP is eligible for listing on the National Register of Historic Places (NRHP) under Criteria A and C (agriculture, economics and architecture) at the local level of significance (see Figure 3-2 and 3-3). The area of the property is 1.7 hectares (4.13 acres) as identified in the Historic Properties Survey Report (HPSR) dated February 1991. The DKP is elevated above the lake so the Dam Keeper could monitor the water level and release water if necessary. Access to the property is via a one lane curvilinear dirt road from SR-18.

The special use permit for the rock house and several out-buildings (all contributing elements to the DKP eligibility for listing on the NRHP) was relinquished by the Bear Valley Mutual Water Company in 1968 to the USFS. The DKP was not occupied after 1968 and was to be partially demolished in 1970; however, this project was abandoned when entry became unsafe. The DKP has suffered from storm and earthquake damage and continues to deteriorate over time.

The DKP is a key satellite interest point of the Big Bear Discovery Center at the north shore (located near Fawnskin on the north shore) operated by the USFS. The Discovery Center is a location that forest visitors can obtain additional information regarding natural and historical resources within the Big Bear Valley.

The USFS has indicated that people are rarely seen visiting the DKP; however the USFS does not keep records on the numbers of visitors to the site. The USFS has indicated that it knows of no functions or activities that occur on the site but have indicated that it is important for historical preservation. The USFS has indicated that the Dam Keeper's House may someday be renovated but there are no plans at this time to do so. When and if there are efforts to rehabilitate the Dam Keeper's House for use as an interpretive site, the USFS has indicated that all parking (except for those with special needs) would be at the lake/dam pull off area currently used for parking.

**Figure 3-2: Photo of Existing Dam Keeper's House**

### **3.2 Big Bear Lake Southwest Shore Historic District (SSHD)**

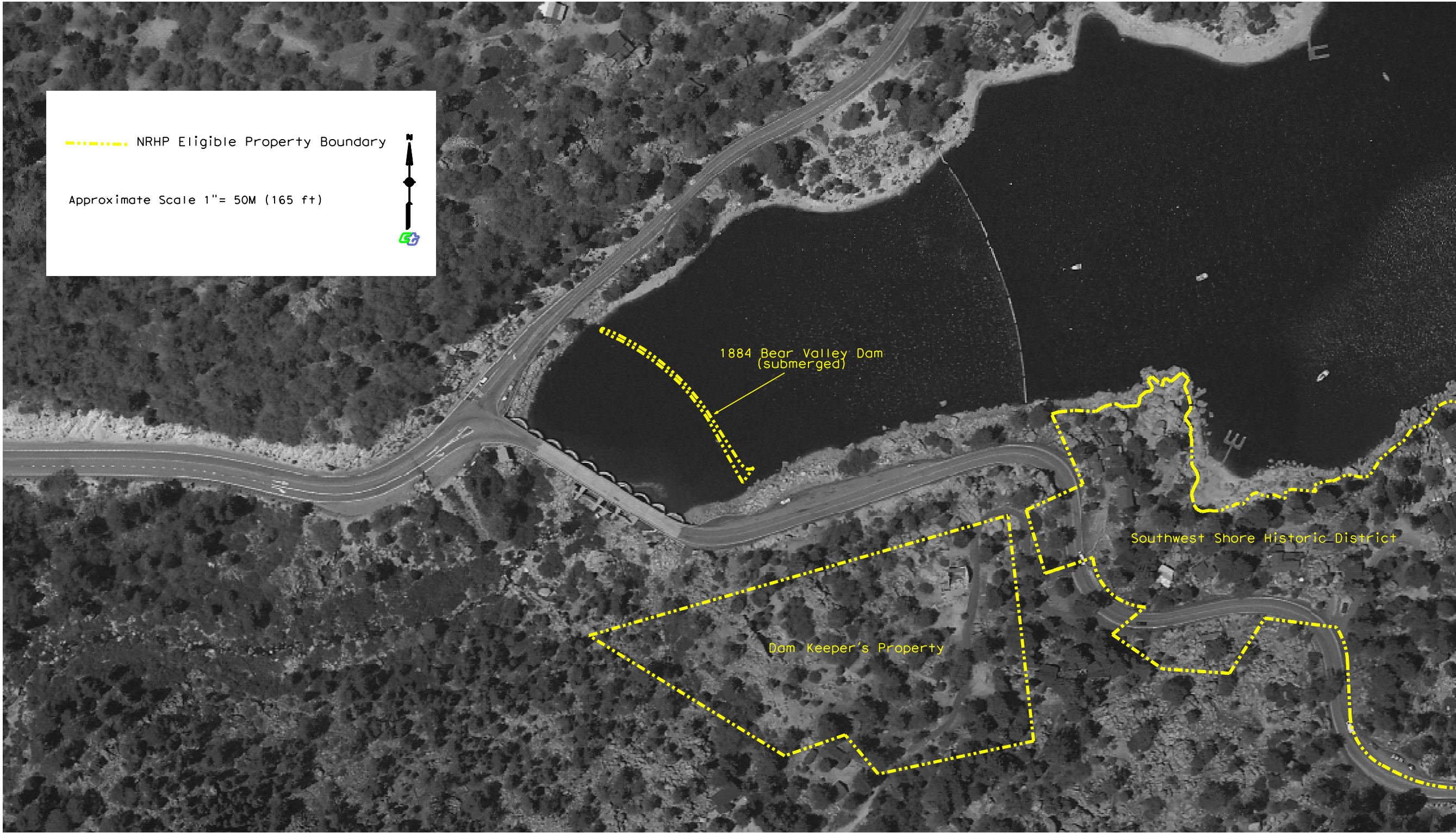
The Big Bear Southwest Shore Historic District was determined eligible for listing on the NRHP under Criterion A (recreation) and under Criterion C (architecture) at the local level of significance; the period of significance is 1911-1941 (see Figure 3-3 and HPSR bound separately).

The Big Bear Southwest Shore Historic District is located east of the Dam Keeper's House and extends along the irregular Big Bear Lake shoreline. State Route 18 primarily delineates the district's southern boundary; curvilinear, narrow dirt roads provide access to the district from the highway. The district is comprised of seventy-seven privately owned cabins and a community garage, which are on parcels leased from the USFS. Constructed between 1911 and 1941, seventy-two buildings are contributors (i.e. contribute to the SSHD eligibility for listing on the national register) and six buildings are non-contributors to the historic district. These USFS recreational residences are arranged informally within the Big Bear Tract and along with their setting, were designed to be in harmony with the natural landscape. Their small size and rustic design are characteristic features and reflect early attempts by the USFS to regulate compatible building development within a natural setting (Caltrans, 1997a).

The existing cabins were authorized under USFS special use permits beginning in 1884. While the USFS owns title to the land, the actual homes (structures) are privately owned and are intended to be used only for seasonal recreation by the owner. The USFS has and is continuing to evaluate requirements for owners to restore the cabins to their original features.



Figure 3-3: Properties Eligible for the NRHP Within Project Limits



### **3.3 Big Bear Lake Shoreline**

The Big Bear Lake shoreline extends for 35 kilometers (22 miles) around the 1,156 hectare (2,856 acre) lake. Many recreational opportunities are associated with the shoreline and include: hiking, biking, walking, running, fishing, camping and picnicking. For the purpose of this evaluation, and due to the fluctuations in the lake level, the lakeshore is considered to be land which lies above the high-water line (2,056 meters [6,745 feet] above msl) up to the roadway. This definition of lakeshore is applicable to all potentially impacted lakeshore areas associated with the proposed project (see Figure 3-4)

The main access to the shoreline is from SR-18 and 38. Within Big Bear Lake and Big Bear City the shoreline can also be accessed from various local streets.

All of the shoreline potentially impacted by the proposed project is administered by the USFS. Some portions of the shoreline within the unincorporated areas of Fawnskin and Big Bear City are privately owned. The shoreline area adjacent to Alternative 4 is heavily used for fishing. Areas near the dam are the deepest in the lake and offer cooler water for fish during the warmer summer months.

The USFS has indicated that they plan to make some improvements to the areas, which include better fishing access and bathrooms. Although no specific plans have been completed, the Department will work with the USFS to make sure a preferred alternative would not preclude the USFS anticipated improvement plans within the project area.

Lake use statistics (2001) were requested from the BBMWD. The use statistics indicate the average shoreline use (fishing, swimming, etc.) per Weekday (Mon-Fri) and Weekend day (Sat-Sun) for the months of May through September (see Table 3-1).

**Table 3-1: Average Daily Lakeshore use**

	<b>Weekday (Mon-Fri)</b>	<b>Weekend (Sat &amp; Sun)</b>
Shore Users (Average Persons/Day)	291	619

Use statistics provided by BBMWD

Figure 3-4: Big Bear Lake Shoreline Within Project Limits





### 3.4 **Big Bear Lake**

The Big Bear Lake water surface covers approximately 1,156 hectares (2,856 acres; [see Figures 3-5 and 3-6]). The lake is a public fishing and recreation lake. Swimming is allowed within 15 meters (50 feet) of the shore unless posted otherwise. Big Bear Lake also provides for all types of boating activities including: water skiing, sailing, fishing, personal watercraft, float tubes, kayaking, canoeing and sail boarding. Big Bear Lake is a trophy rainbow trout fishery and boasts large populations of largemouth and smallmouth bass, catfish, crappie, bluegill, and pumpkinseed. The California Department of Fish & Game (CDFG) stocks the Lake regularly throughout the year. Various public and private boat launches exist around the entire lake. The BBMWD have two boat launches on the north shore. Big Bear Lake is a weekend destination for people from all over southern California. The lake is the main focus for the summer recreational season (May-September). The BBMWD lake patrol does manual counts of its users while on patrol. The most recent lake use statistics available indicate that from May-September 2001 there were a total of 51,329 watercraft and 34,172 shoreline users.

**Figure 3-5: Big Bear Lake**



Source: BBMWD.org

Lake use statistics (2001) were requested from the BBMWD. The use statistics indicate the average lake surface use (fishing, skiing, etc.) per weekday (Mon-Fri) and weekend day (Sat-Sun) for the months of May through September (see Table 3-2).

**Table 3-2: Average Daily Lake Use**

	<b>Weekday (Mon-Fri)</b>	<b>Weekend (Sat &amp; Sun)</b>
<b>Lake Users</b> (Average Boats/Day)	204	405

Use statistics provided by BBMWD

The Bear Valley Mutual Water Company owns the water rights to the lake; however, the lake level is managed by the BBMWD. BBMWD can maintain water in the lake while, at the same time, the irrigation interest downstream can be satisfied. Bear Valley Mutual Water Company determines the irrigation need downstream and estimates the demand on Big Bear Lake to meet these needs. The BBMWD then has the option of either supplying this needed water from another source (mainly the State Water Project and the Upper Santa Ana groundwater basin) or releasing the water from the Lake.

Big Bear Lake's high water level is 2,056 meters (6,745 feet) above mean sea level. Everything below the high-water level is associated with Big Bear Lake. There are no designated wildlife or waterfowl refuges located within the project area or that will be affected by the proposed project. There are no plans to increase the size of the lake.

Figure 3-6: Big Bear Lake



### **3.5 BBMWD West Boat Launch**

If Alternative 4 were selected as the preferred alternative, the Department proposes to use the BBMWD west boat launch to launch any boats and/or barges potentially required for its construction. The west boat launch is located on SR-38 at Postmile 57.29. Use of the boat launch will require further coordination with the BBMWD. BBMWD may require restricting public use of the boat ramp for multiple days during each construction year to launch construction barges and boats and then to remove them during the proposed winter shutdown. The west boat launch is accessible from SR-38. The property is owned by the USFS and the BBMWD boat launch is authorized under a USFS special use permit. The boat launch encompasses three acres and has 25 parking spaces for vehicles with trailers and 10 regular parking spots. The location also has dirt parking areas used for overflow parking that can accommodate an additional 25 vehicles or vehicles towing trailers. The west boat launch is also equipped with full service restrooms connected to the sewer system and water for nonpotable uses. The launch area is equipped with an approximate 12-meter (36 foot) wide asphalt concrete boat ramp. Photos of the west boat launch are provided below in Figures 3-7 and 3-8.

**Figure 3-7: BBMWD Boat Launch**





**Figure 3-8: BBMWD Boat Launch Parking Areas**

The west boat launch is the closest public boat launch to the proposed project area. West boat launch use statistics (2001) were requested from the BBMWD. The use statistics indicate the monthly boat launch and fishing dock use. Counts were taken for the months of May through September. No counts were taken in April because the launch is not staffed until May. Records on the specific activities that occur at the boat launch are not kept; however, it is assumed that all vehicles with boat trailers parked at the launch used the boat ramp. Additionally the BBMWD also keeps counts for the fishing docks located adjacent to the ramps. Use statistics associated with the west boat launch for 2001 are summarized in Table 3-3.

**Table 3-3: West Boat Launch Use Statistics**

	<b>Autos with Boat Trailers</b>	<b>People using Fishing Docks</b>	<b>Total Use</b>
<b>April</b>	No count in April		
<b>May</b>	592	279	871
<b>June</b>	744	378	1,122
<b>July</b>	936	281	1,217
<b>August</b>	987	308	1,295
<b>September</b>	324	51	375

Use statistics provided by BBMWD

### **3.6 Other Park, Recreational Facilities, Wildlife Refuges, and Historic Properties Evaluated Relative to the Requirements of Section 4(f)**

Parks, recreational facilities, wildlife refuges and historic properties found within 0.8 kilometers (1/2 mile) of the project area use were evaluated and do not trigger Section 4(f) protection because: 1) they are not publicly owned, 2) they are not open to the public, 3) the project does not permanently use the property and does not hinder the preservation of the property, and/or 4) the proximity impacts do not result in constructive use of the property. Properties/resources that meet these criteria include: USFS Land, 1884 Bear Valley Dam (submerged) and Bear Creek. The USFS owns all of these resources and concurred with the Department's analysis that the Properties/resources discussed within Section 3.6 would not trigger 4(f) with regard to the proposed project alternatives (see Attachment A).

#### **3.6.1 USFS Land**

The entire project is located within the SBNF (see Figure 3-9). The forest is managed for multiple uses that include but are not limited to: natural resource extraction (timber, oil and gas, minerals, etc.), natural resource protection (flora and fauna, visual quality, air quality, water quality, wilderness areas, historical and cultural resources, research natural areas, etc.), and recreation (skiing, hiking, biking, fishing, hunting, boating, picnicking, off-road vehicle use, horseback riding, etc.). Generally the entire forest is a non-section 4(f) resource. All areas within the forest that are not specifically designated within plans by the USFS as functioning for significant public park or recreation areas, wildlife or waterfowl refuges or are a historic property on or eligible for listing on the National Register of Historic Places are non-section 4(f) resources (23 CFR 771.135(d)).

A letter was written by the Department to the USFS requesting concurrence that all of the properties within the project area that meet the criteria of 4(f) resources stated previously in Section "1.0 Introduction to 4(f)" had been identified. The USFS agreed with the Department's analysis of the 4(f) eligible resources and did not identify any additional areas/resources that they felt would be eligible 4(f) properties (see concurrence letter from SBNF in Attachment A).

**Figure 3-9: San Bernardino National Forest Boundary**



### 3.6.2 1884 Bear Valley Dam

The 1884 Bear Valley Dam is eligible for the National Register of Historic Places under Criteria A (agriculture and economics) at the local level of significance, and under criteria C (engineering) at the State level of significance (see Figure 3-3). The 1884 Bear Valley Dam was originally built to for irrigation and domestic use for the city of Redlands. The dam is a stone arch bridge 15.8 meters (52 feet) high and extends across the lake approximately 45.7 meters (150 feet) east of the existing dam (see Figures 3-3 and 3-10).

**Figure 3-10: 1884 Bear Valley Dam (submerged)**

Source: [WWW.BBMWD.org](http://WWW.BBMWD.org)



In 1911 the existing dam was completed to increase the storage capacity of the lake. Due to the increase in storage capacity, the 1884 Bear Valley Dam was submerged and is only visible on rare occasions when the water level in Big Bear Lake is extremely low (approximately 17+ feet below full).

Due to the nature of the resource (submerged beneath Big Bear Lake and outside of the construction impact areas for the alternatives) there would be no impact on the submerged 1884 Bear Valley Dam (see September 1997 Finding of Effect bound separately).

### **3.6.3 Bear Creek**

Bear Creek is a river designated for study as a wild river. Rivers under study pursuant to Section 5(a) of the Wild and Scenic Rivers Act are not considered 4(f) resources unless they are significant publicly owned public parks, recreation areas, and/or refuges, or significant historic sites in a potential river corridor. Accordingly, Section 4(f) does not apply to Bear Creek (FHWA Section 4(f) Policy Paper, revised 03/01/05). Bear Creek does not meet these criteria.

## **4.0 Impacts to Section 4(f) Properties**

### **4.1 Impact Summaries**

Table 4-1 is a use summary associated with the potential construction impacts in relation to the proposed construction footprints to Section 4(f) properties. Table 4-1 identifies the permanent and temporary 4(f) uses of each 4(f) property associated with each proposed build alternative and the avoidance alternatives. Permanent impact areas are those areas that will be occupied permanently by roadway, bridge abutments and/or retaining walls or where the impacted area's surface or function cannot be restored to its existing or better condition. Temporary impact areas are the areas or functions that can be restored to the existing or better condition subsequent to construction. Those areas identified as being permanently and temporarily impacted are shown in Figures 4-1 through 4-4.

Both alternatives 4 and 5 would have temporary and permanent uses of multiple 4(f) resources that cannot be avoided due to topographic constraints (lake, mountains, etc.), the proximity of the proposed alignments to these constraints, as well as the proximity of the alignments to the eligible 4(f) resources. The impacts to 4(f) resources associated with Alternatives 4 and 5 are discussed in detail below

Due to the proximity of the eligible 4(f) resources adjacent to the existing SR-18 alignment and the need for the bridge to be replaced near its current location, only one alignment for the avoidance alternatives was identified. The avoidance alternatives do not require any use of any Section 4(f) resources; however, both avoidance alternatives have additional impacts to other resources, as well as engineering concerns, and costs that are substantially greater than either Alternative 4 or Alternative 5. The USFS does not prefer either Avoidance alternative when compared to the proposed Build alternative (see Attachment A)

**Table 4-1: Summary of Permanent and Temporary Impacts (uses) to Each 4(f) Resource by Alternative (hectare/acre)**

	<b>Southwest Shore Historic District</b>	<b>Dam Keeper's Property</b>	<b>1884 Bear Valley Dam</b>	<b>Big Bear Lake</b>	<b>Big Bear Lake Shoreline</b>	<b>BBMWD West Boat Launch</b>
<b>No Action/ No Build</b>	None	None	None	None	None	None
<b>Alternative 4 (See Figures 4-1 and 4-3)</b>	<b>P (0.04/0.1)</b> T(0.006/0.015)	None	None	T (0.4/1.0) Swimming only	<b>P (0.15/0.38)</b> T (0.58/1.4)	T (Several days per construction season to launch and remove boats/barges)
<b>Alternative 5 (See Figures 4-2 and 4-4)</b>	<b>P (0.03/0.07)</b> T (0.03/0.07)	<b>P (0.10/0.25)</b>	None	T (0.27/0.75) Swimming only	<b>P (0.02/0.05)</b> T (0.10/0.25)	None
<b>Avoidance Alternatives (cut and tunnel)</b>	None	None	None	None	None	None

P= Permanent impact, T=Temporary impact

Figure 4-1: Alternative 4 Permanent 4(f) Impacts

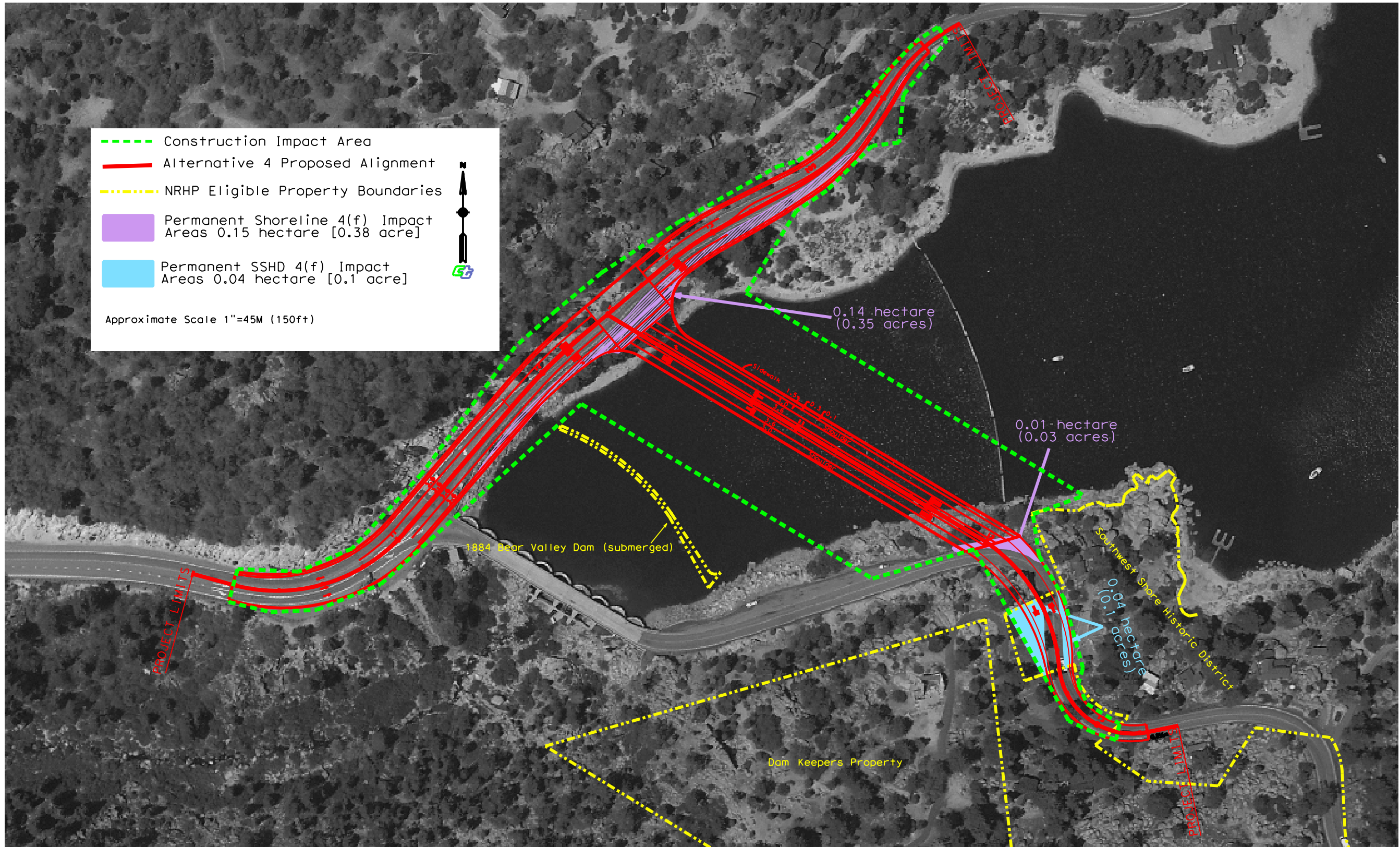




Figure 4-2: Alternative 5 Permanent 4(f) Impacts

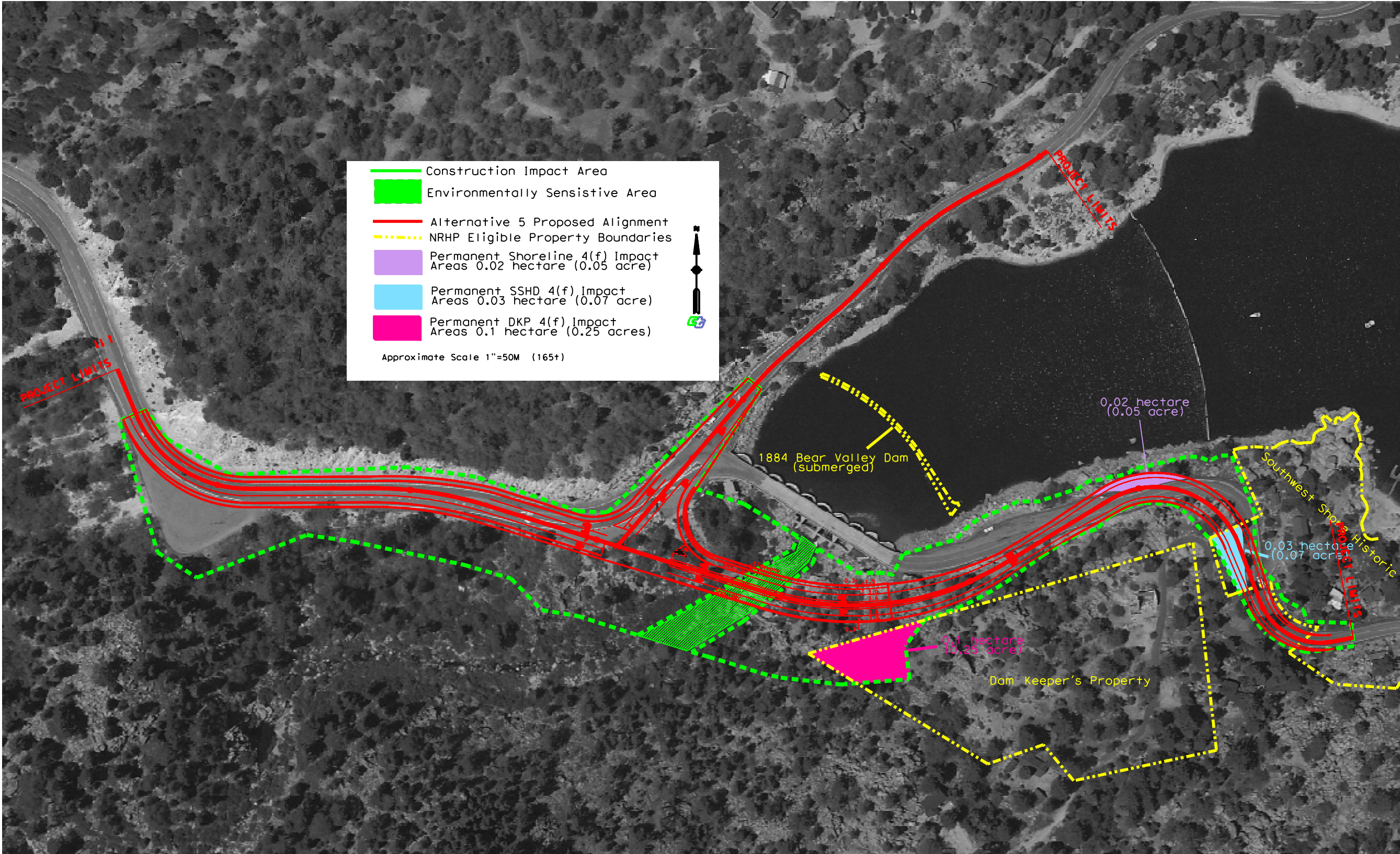
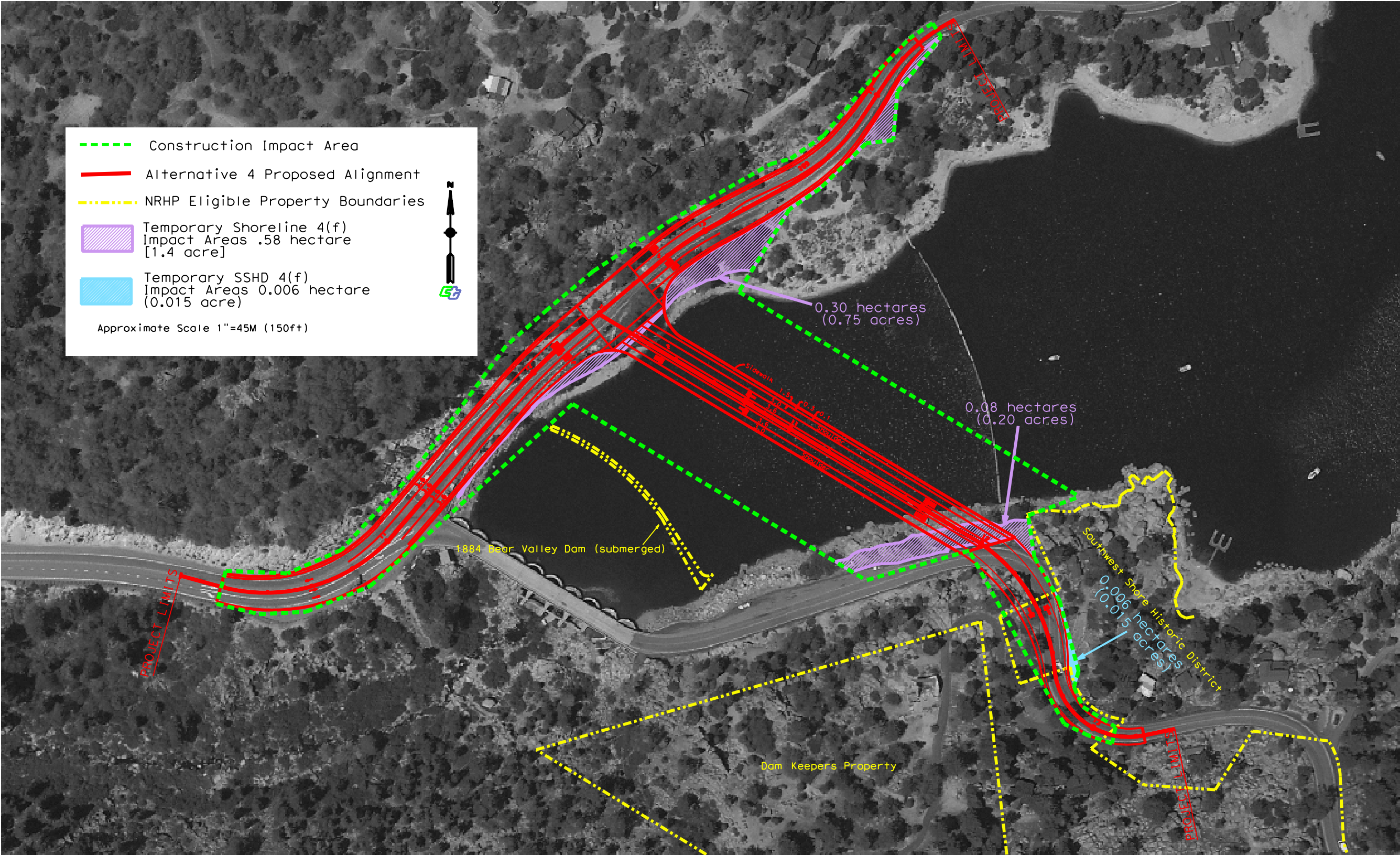




Figure 4-3: Alternative 4 Temporary 4(f) Impacts





**Figure 4-4: Alternative 5 Temporary 4(f) Impacts**

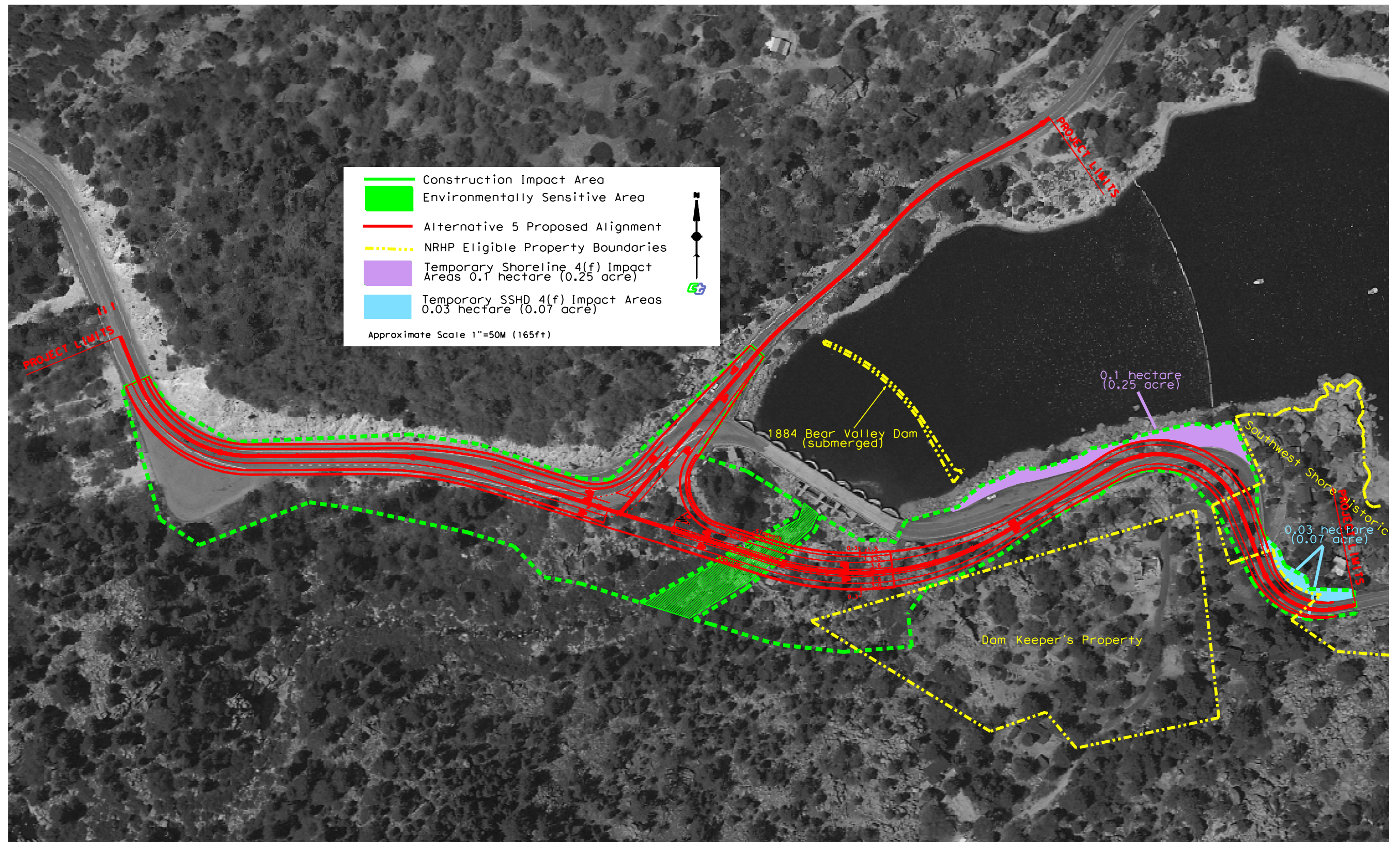




Table 4-2 compares the permanent impacts associated with the No Action/No Build Alternative, Alternative 4, Alternative 5 and the two Avoidance Alternatives (Cut and Tunnel) on all resources within the construction footprint. Impacts from the avoidance alternatives are substantially greater on other resources within the project area and/or substantially more costly when compared to Alternative 4 or Alternative 5. All impacts to the 4(f) resources are discussed in detail in Section 4.3

**Table 4-2: Total Permanent Impacts to Resources and Cost Comparison By Alternative**

Resource Impacted	No Action/No Build Alternative	Avoidance Alternative Cut	Avoidance Alternative Tunnel	Alternative 4	Alternative 5
Construction Impact Area (Hectares/Acres)	No Impact	9.5/23.5	3.2/7.9	2.8/6.8	3.0/7.4
Excavation Quantity (Cubic meter/Cubic yard)	No Impact	1,100,000/1,500,000	75,000/98,100	3,060/4,000	11,470/15,000
Jeffery Pine Forest (Hectares/Acres)	No Impact	Permanent: 7.0 / 13.3	Permanent: 0.3 / 0.8	Permanent: 0.20/0.5	Permanent: 0.35/0.9
Riparian: Willow Scrub	No Impact	No Impacts	No Impacts	No Impacts	No Impacts
Lakeshore Habitat (Hectares/Acres)	No Impact	No Impacts	No Impacts	Permanent: 0.12 /0.30	Permanent: 0.04/0.10
Impacts to Bald Eagle	No Impact	13 perch trees Potential impacts to bald eagle roost habitat.	13 perch trees Potential impacts to bald eagle roost habitat.	4 perch trees	11 perch trees
Impacts to Southern Rubber Boa Habitat (Hectares/Acres)	No Impact	Permanent 7.0 / 13.3	Permanent 0.3 / 0.8	Permanent: 0.06/0.15	Permanent: 0.20/0.50
Visual	No Impact	Most Intrusive	Least Intrusive	Highly Intrusive	Moderately Intrusive
Permanent 4(f) Use (Hectares/Acres)	None	None	None	0.19/0.47	0.15/0.37
Temporary 4(f) Use	None	None	None	0.99/2.5	0.40/1.0
Floodplains	No permanent impacts. Structure will span floodplain.	No permanent impacts. Structure will span floodplain.	No permanent impacts. Structure will span floodplain.	Not significant encroachment as defined in 23 CFR 650.105(q)	No permanent impacts. Structure will span floodplain.
Water Quality	No Adverse Water Quality Impacts				
Continued on Next Page					

Resource Impacted	No Action/No Build Alternative	Avoidance Alternative Cut	Avoidance Alternative Tunnel	Alternative 4	Alternative 5
Noise	Noise impacts do not exceed the NAC (67 dBA) , and No substantial noise impacts (increase within 1 dBA of NAC)				
Air Quality	No Adverse Air Quality Impact				
Section 106	No Effect	Potential Adverse Effect	Potential No Effect	Adverse Effect	Adverse Effect
Residential Relocations	0	2	2	0	0
Cost (\$1000's)	10 per year	\$42,000	\$60,000	\$15,300	\$24,200

#### **4.2 Unusual Factors Associated With Section 4(f) Avoidance Alternatives**

##### **Alternatives Proposed further east of Alternative 4**

All other alternatives that could be proposed to the east of the existing dam and outside of the general area for proposed Alternative 4 (within area that watercraft use is prohibited), as well as beyond the boundary of the Big Bear Lake Southwest Shore Historic District (SSHD) would result in a much larger bridge with more piers in the lake. Any of these alternatives would also bisect a portion of the lake which could result in loss of recreational use of these areas. All alternatives proposed to the east of proposed Alternative 4 would result in a use of 4(f) lands (Big Bear Lake and Big Bear Lake shoreline). All potential alternatives further to the east but still within the SSHD would result in larger uses of SSHD and would have a greater potential of requiring removal of some contributing structures. The SSHD extends for approximately one mile to the east of the project along the Big Bear Lake shoreline

##### **Location of Historic Property Boundary - SSHD**

Both of the proposed build alternatives utilize as much of the existing roadway as possible. The SSHD boundary overlaps SR 18 at several locations within the project area (see Figure 3-25: Eligible NRHP Properties & First Supplemental Historic Property Survey Report Appendix B Map-1). All improvements within these areas outside of the existing paved areas will result in use of Section 4(f) properties. Additionally, the boundary of the SSHD extends for approximately 1 mile to the east of the project area.

### **Location of Historic Property Boundary and Big Bear Lake Dam – DKH**

The Dam Keeper's House property (DKH) is located to the south and west of SR 18. The property is located 50 to 60 feet above the road elevation and occupies approximately four acres on top of a rock outcropping situated directly adjacent to the end of the existing Big Bear Lake bridge (see Figure 3-25: Eligible NRHP Properties). Based on the minimum areas identified and required for construction combined with the constraints placed on the project by the Division of Safety of Dams, neither Alternative 5 nor any other alternative alignment that would go to the north of the DKH property and south of the existing dam can avoid use of the DKH property.

### **USFS Area of Visual Retention**

Per the USFS management plan the proposed project is in an area of visual retention (see Section 3.8.3 of the DEIS/R). The Avoidance Cut Alternative would result in the most permanent visual modification of the project area due to the extensive cuts would extend approximately 80 meters (240 feet) above all impact areas associated with Build Alternatives. The USFS does not support the Avoidance Cut Alternative.

### **USFS Does Not Support Avoidance Alternatives vs. the Build Alternatives**

The USFS is a cooperating agency and administers all of the land that the proposed project will impact. Based on the USFS review of both the Cut and Tunnel Avoidance Alternatives, the USFS indicated that although the build alternatives would require the permanent incorporation of small areas (1/2 acre or less for either Alternative 4 or 5) of multiple properties eligible for protection under Section 4(f), use of these small areas for transportation purposes would not prevent the public from utilizing the eligible properties for their intended purposes of historic preservation and recreation (see Attachment A - USFS letter dated 6/1/2004).

### **USFS Construction Constraints**

All of the proposed alternatives would be located on lands administered by the USFS. The proposed project will require their approval and an amendment to the transportation easement. Through coordination with the USFS, they have indicated that they would not support any alternatives that would require cutting into the canyon/road embankment to create construction access for any alternative over Big Bear Creek Canyon. The USFS has also indicated that any access method to the support locations for a canyon alternative should not exceed 12 meters (40 feet) wide.

### **4.3 4(f) Property and Resource Impact Discussion**

#### **4.3.1 No Action/ No Build Alternative**

The No Action/No Build Alternative would not have a permanent or temporary use of section 4(f) lands. The existing roadway and bridge would remain the same as the and would require no improvements within or adjacent to SSHD, DKP, Big Bear Lake or the Big Bear Lake shoreline. The No Action/No Build Alternative would not impact vegetation, wildlife, air quality or water quality within the 4(f) properties, access to the 4(f) properties, or any functions or facilities associated with the 4(f) properties.

#### **4.3.2 Avoidance Cut Alternative**

The Avoidance Cut Alternative would not have a permanent or temporary use of section 4(f) lands. The proposed alignment would not require any modification of or to the SSHD, DKP, Big Bear Lake or the Big Bear Lake shoreline; however, the USFS does not prefer this Avoidance alternative over the proposed build Alternatives (see Attachment A). Additionally, the Avoidance Cut Alternative's estimated construction cost is much higher compared to the estimated construction cost to build either Alternative 4 or Alternative 5 (42 million [Avoidance Cut] vs. 15-25 million [Alternatives 4 and 5]).

#### **Impacts from the Avoidance Cut Alternative on Resources Within or Adjacent to the 4(f) Properties**

The Avoidance Cut Alternative would have no permanent impacts on vegetation, water quality, air quality, noise, access or functions and facilities of the 4(f) properties. The Avoidance Alternative does not require the removal of vegetation within any of the 4(f) properties. Water and air quality studies completed for this project indicate no adverse impacts within the project limits or the project vicinity (Big Bear Valley; [see Sections 3.11 and 3.14 of the DEIS/R]). No adverse noise impacts were identified for the proposed project. This Alternative would have noise impacts to the 4(f) properties but they would not be adverse. The majority of the alignment would be depressed 30 meters within the cut for the new roadway and it is located further away from all of the 4(f) property (more than 300 feet from all receptor locations; [see Section 3.15 of the DEIS/R]); however, the cut into the hillside required for this alternative would generate approximately 1.1 million cubic meters (1.5 million cubic yards) of excess material. The Avoidance Cut Alternative

would not limit or restrict access to any of the 4(f) properties. The Avoidance Cut Alternative would not impact the functions or facilities of any of the 4(f) properties. The Avoidance Alternative would have no impacts on the lake's or shoreline's recreational functions or facilities or the preservationist purposes, structures or National Register eligibility of the SSHD or the DKP. The USFS does not support the Avoidance Cut Alternative, as noted in section 4.2.

## **Visual**

### **DKP, SSHD, Big Bear Lake, Big Bear Lake Shoreline and BBMWD West Boat Launch**

The Avoidance Cut Alternative would be the least visually preferred alternative due to the fact that the southern cut slope would be obviously visible from much greater distances along the north shore and from a majority of the lake because the maximum impacted elevation would be greatly increased. The highest impacted elevation associated with the build alternatives is retaining wall two for Alternative 5 at 2,082 meters (6,830 feet; [see Figures 2-11, 3-15 and 3-17 of the DEIS/R) above sea level vs. Avoidance Cut Alternative's southern cut slope at 2,160 meters (7,085 feet) above sea level. The southern cut slope would be up to 78 meters (255 feet) above the retaining wall two in Figures 3-15 and 3-17 of the DEIS/R. The cut would also remove an entire small peak from within the required cut area. The visual impacts associated with the Avoidance Cut Alternative would detract from both the historical setting of the DKP and SSHD, as well as the forest and lake setting; however, these impacts would not substantially impair any of the attributes that make these properties eligible as 4(f) resources.

## **Wildlife**

### **DKP**

The Avoidance Cut Alternative would have temporary construction noise impacts on potential bald eagle perch and forage habitat within the DKP adjacent to the proposed alignment construction. The Avoidance Cut Alternative would also permanently fragment 2.5 hectares (6 acres) of wildlife habitat located between the proposed Avoidance Cut Alternative and the existing SR-18. All of the 2.5 hectares (6 acres), which includes 1.6 hectare (4 acres) DKP, are potential southern rubber boa habitat.

### **4.3.3 Avoidance Tunnel Alternative**

The Avoidance Tunnel Alternative would not have a permanent or temporary use of any section 4(f) lands. The proposed alignment would require no modification of or to the SSHD, DKP, Big Bear Lake or the Big Bear Lake shoreline; however, the USFS does not prefer this Avoidance alternative over the proposed Build alternatives. Additionally, the Avoidance Tunnel Alternative estimated construction cost is much higher compared to the estimated construction cost to build either Alternative 4 or Alternative 5 (60 million [Avoidance Tunnel] vs. 15-25 million [Alternatives 4 and 5]). The USFS does not support the Avoidance Tunnel Alternative, as noted in Section 4.2.

### **Impacts from the Avoidance Tunnel Alternative on Resources Within or Adjacent to the 4(f) Properties**

The Avoidance Tunnel Alternative would not impact vegetation, wildlife, air quality, or water quality within the 4(f) properties, access to the 4(f) properties, or any functions or facilities associated with the 4(f) properties. This alternative would be the most visually preferred because most of the alternative would be below ground and the least visible from all 4(f) properties. This alternative would also have the least impacts to wildlife and vegetation because it would be underground.

### **4.3.4 Alternative 4 (Across Big Bear Lake)**

#### **4.3.4.1 Big Bear Lake Southwest Shore Historic District (SSHD)**

Alternative 4 would require the permanent use of 0.03 hectares (0.07 acres) from the SSHD for transportation and permanently integrated as part of SR-18 (see Figure 4-1). This use would not require the removal or relocation of any of the contributing or non-contributing structures (i.e. the other recreational residences, within the SSHD which contribute to its eligibility for the National Register). This use from along the outer edge of the SSHD is adjacent to the existing roadway and would occur with any relocation or widening of SR-18 through this area due to the alignment of the boundary and how it extends across SR-18 at several locations. Alternative 4 would also result in a temporary use of 0.01 hectares (.02 acres) by encroaching into SSHD boundary during construction (see Figure 4-3). This area is an existing roadway fill area and will remain as roadway fill subsequent to construction.

#### **4.3.4.1.2 Resources Impacted by Alternative 4 within the SSHD**



## **Visual**

The proposed bridge for Alternative 4 across the lake will dominate the majority of the views near the proposed alignment at lake's west end (see Section 3.8 Figures 3-7 through 3-14 of the DEIS/R). The proposed bridge would be visible to some cabins located at the SSHD's western end adjacent to the project area (see Figures 3-9 and 3-10 of the DEIS/R). The magnitude of the impacts would be reduced with both distance and screening from the natural vegetation and topography, both inside and outside of the SSHD. The bridge and retaining walls would adversely alter the setting and the contributing elements of the setting (i.e. rock outcroppings, trees, natural topography); however, this alternative and its associated impacts would not substantially impair any of the preservationist purposes of the Southwest Shore Historic District (see VIA bound, separately).

## **Vegetation & Wildlife**

Alternative 4 would result in the permanent loss of 0.03 hectares (0.08 acres) of Jeffery Pine forest, southern rubber boa habitat and potential bald eagle perch habitat within the SSHD (see Figure 4-1). There are two potential perch trees that would be permanently removed within these permanently impacted areas. This area would become part of the transportation system and be permanently integrated as part of the SR-18 curve realignment at the south end of the new bridge.

## **Access, Facilities, Functions, and/or Activities Affected**

Proposed Alternative 4, would at times restrict/limit use of an access road adjacent to northeast side of the road near the curve realignment during the reconstruction of the roadway (See Section 3.4.4 and Figure 3-5 of the DEIS/R). The Department would provide controlled use and/or a temporary access road during construction for access to the cabins; however, none of the functions or activities (seasonal vacation use by the lease holders) would be permanently adversely affected by construction of the proposed alternative.

### **4.3.4.2 Dam Keeper's House Property (DKP)**

Alternative 4 would have no temporary or permanent impacts to the DKP (see Figures 4-1 and 4-3); however, the proposed bridge would substantially alter the view of the lake from the DKP (see Figure 3-11 of the DEIS/R and FOE, bound separately).

### **4.3.4.3 Big Bear Lake Shoreline**

Alternative 4 would require the permanent use of approximately 0.12 hectares (0.3 acres) (see Figure 4-1) and become part of the transportation system permanently integrated into the SR-18 for the bridge abutments, retaining walls and roadway along the north and south shore. These areas are located above areas used for fishing. The abutments associated with alternative 4 would be 9 meters (30 feet) above the lake (see bridge simulations for Alternative 4 in DEIS/R Section 3.8). A temporary use of the lakeshore associated with restricted use during the proposed construction would also occur. The temporary use of the lakeshore associated with Alternative 4 is 0.43 hectares (1.1 acres). Lakeshore public recreational access (fishing, swimming, picnicking, etc.) within the project area would be prohibited except to construction personnel for the duration of construction or until the contractor determines that public safety is not at risk. This area includes the majority of the north shore along existing SR-38 within the project limits and a smaller area on the south shore where the new alignment would rejoin existing SR-18 within the construction impact area (see Figure 4-3). This also includes 0.2 hectares (0.5 acres) for the proposed construction storage/staging located on the lakeshore adjacent to Gray's Landing (see Figure 4-1 and Chapter 2: Figure 2-8 of the DEIS/R).

#### **4.3.4.3.1 Resources Impacted by Alternative 4 within the Big Bear Lake Shoreline**

##### **Visual**

The proposed bridge will dominate all views near the proposed alignment at the lake's west end due to its alignment over the lake and its elevated vertical alignment (see Figures 3-8, 3-9 and 3-13 in the DEIS/R). The magnitude of the impacts would be reduced with distance. The bridge and retaining walls will adversely alter the setting and the contributing elements of the setting; however, this alternative and its associated impacts would not substantially impair the lakeshore's recreational values. Subsequent to construction, lakeshore recreational access would be restored (See Section 3.8 of the DEIS/R).

##### **Vegetation/Wildlife**

The roadway, abutments and retaining walls would permanently occupy 0.15 hectares (0.38 acres) of shoreline habitat. Wildlife that potentially may utilize this area to drink water, forage or move along the shoreline would be excluded for the duration of construction (3 to 4 years). Due to the proposed alternative's location, impacts to wildlife are expected to be minimal; however, this alternative would result in the

permanent removal of two potential bald eagle perch trees on each side of the lake (4 total).

Temporarily impacted areas would be restored in accordance with conceptual revegetation plan provided in Appendix E of the DEIS/R and perch trees would be recreated at a ratio of 2:1 by creating “perching windows” in tops of mature trees.

#### **Access, Facilities, Functions, and/or Activities Affected**

All non-construction personnel would be excluded from the lake shoreline for the duration of the project. No parking on the shoulders adjacent to the shore or fishing within the project limits would be allowed within the construction impact areas. Currently there are no facilities (i.e. bathrooms, water or other) within the project limits. The USFS has indicated a desire to improve the lake shoreline and area near the dam for improved pedestrian and fishing access; however, a project has not been planned or funded. The USFS has proposed some of these improvements as compensation for lakeshore impacts (see Attachment A).

#### **4.3.4.4 Big Bear Lake**

Alternative 4 crosses the lake and requires four 2.44 m (8-foot) diameter piles within the lake. The piles would permanently occupy 0.003 hectares (0.007 acres) of the lake surface. The lake surface within this area is not accessible to the public with the exception of swimming, which is allowed within 15 meters (50 feet) of the shore (see Figure 3-5). The support piers would be more than 15 meters (50 feet) from the shore and subsequent to construction full swimming access would be restored (see Figure 3-3-8 and 3-10 and Appendix C of the DEIS/R). Therefore there would not be a permanent 4(f) use of lake surface within and immediately adjacent to Alternative 4. The boom line, visible on Figure 3-5 (running north and south towards the east side of the proposed project area), identifies the area not accessible to watercraft.

#### **4.3.4.4.1 Resources Impacted by Alternative 4 within Big Bear Lake**

#### **Access, Facilities, Functions, and/or Activities Affected**

Alternative 4 would have minimal temporary lake surface impacts. Barges proposed to be used for construction of this alternative would occupy areas of the lake when picking up materials and/or equipment and also when transporting materials or equipment to the construction area. These impacts would be minor and would not diminish the lake’s existing or future recreational opportunities or values.

Additionally, 0.4 hectare (1.0 acres) of potential swimming areas within the project area would be impacted during construction. Only construction personnel, would be permitted on the shoreline within the project limits. No swimming would be allowed within the construction impact areas for the duration of construction. Subsequent to construction all barges would be removed from the lake and swimming access would be restored.

#### **4.3.4.5 BBMWD West Boat Launch**

Alternative 4 would require the launching of various barges and boats for use during construction. Use of the boat launch would require a permit from the BBMWD (see Attachment A BBMWD letter). Total use of the boat launch would be required for several days at the beginning of and again at the end of the construction season. Use of the boat ramp would be coordinated to coincide with lower use times (i.e. weekdays during early April and weekdays after the labor day holiday prior to the winter shutdown). With the exception of launching barges/boats for construction and for maintenance of the barges during construction, no other impacts to the existing BBMWD west boat launch are anticipated.

#### **4.3.5 Alternative 5 (Across Bear Creek Canyon)**

##### **4.3.5.1 Big Bear Lake Southwest Shore Historic District (SSHD)**

Alternative 5 would require the permanent use of 0.04 hectares (0.10 acres) from the SSHD for transportation and would be permanently integrated into SR-18 (see Figure 4-2). This use would not require the removal or relocation of any of the contributing or non-contributing structures (i.e. recreational residences or outbuildings within the SSHD). This use from along the outer edge of the SSHD is adjacent to the existing roadway and would occur with any relocation or widening of SR-18 through this area due to the SSHD boundary alignment and its extension across SR-18 at several locations. Alternative 5 would also result in a temporary use of 0.03 hectares (0.07 acres) by encroaching into SSHD boundary during construction (see Figure 4-4). This area is an existing roadway fill area and will remain as roadway fill subsequent to construction.

##### **4.3.5.1.1 Resources Impacted by Alternative 5 within the SSHD**

## **Visual**

The proposed bridge for Alternative 5 across the canyon would be the least visible build alternative. Although the bridge would not be highly visible, the cuts and retaining walls would still be visible to the western cabins within the SSHD adjacent to the project area (See Figures 3-16, 3-17, 3-18 and 3-19 of the DEIS/R). The magnitude of the impacts would be reduced with both distance and screening from the natural vegetation and topography. The bridge and retaining walls would adversely alter the setting and the contributing elements of the setting (i.e. trees, rock outcroppings, shoreline, and natural topography [see HPSR bound separately]); however, this alternative and its associated impacts would not substantially impair any of Southwest Shore Historic District preservationist purposes.

## **Vegetation/Wildlife**

Impacts to Vegetation and wildlife within the SSHD associated with alternative 5 are very similar to those associated with Alternative 4. Alternative 5 would result in the permanent loss of 0.04 hectares (0.1 acres) of Jeffery Pine forest, southern rubber boa habitat and potential bald eagle perch habitat within the SSHD (see Figure 4-2). There are two potential perch trees that would be permanently removed within the permanently impacted area. This area would be permanently incorporated into SR-18 as part of the curve realignment.

## **Access, Facilities, Functions, and/or Activities Affected**

Proposed Alternative 5, would, at time restrict/limit use of an access road adjacent to the northeast side of the road near the curve realignment during the roadway reconstruction. The Department would provide controlled use and/or a temporary access road during construction for cabin access; however, none of the functions or activities (seasonal recreational use by the lease holder) would be adversely affected by construction of the proposed alternative.

### **4.3.5.2 Dam Keeper's Property**

All impacts to the DKP from Alternative 5 would be permanent. Alternative 5 would require the permanent use of 0.10 hectare (0.25 acres) of the Dam Keeper's property (see Figure 4-2). Use of the Dam Keeper's property would not be permanently incorporated for transportation purposes but would be permanently altered to accommodate construction access to the southern arch footings and bridge abutment. This area could not be fully restored to the existing or better condition subsequent to

construction of the proposed alternative. The substantial amount of excavation would result in the loss of geologic substructure and prevent restoration of the natural slopes (existing slope approximately 0.5 to 1; [see Figure 4-5]).

**Figure 4-5: Approximate Area Impacted Within the DKP**



#### **4.3.5.2.1 Resources Impacted by Alternative 5 within the DKP**

##### **Visual**

The area shown in Figure 4-5 is at a lower elevation than the rest of the property and the impacts would be screened by existing vegetation and topography (see Figures 3-19 and 3-21 of the DEIS/R). Although these impacts would adversely alter the property (remove large portions of the natural topography and mature vegetation), these impacts would not substantially impair the property's preservationist purpose (approximately 95% of the contiguous property would remain for historical preservation and future use by the USFS).

##### **Vegetation/Wildlife**



Alternative 5 would temporarily impact 0.10 hectares (0.25 acres) of Jeffery pine forest and potential southern rubber boa habitat within the DKP. Although this area cannot be restored to its original condition subsequent to construction but could still be inhabitable by the southern rubber boa after all feasible restoration has been completed. Restoration of the impacted area would be completed in accordance with the guidelines in the conceptual revegetation plan (see Appendix E of DEIS/R)

#### **Access, Facilities, Functions, and/or Activities Affected**

Access to the DKP is via a dirt road located on the south side of SR-18 near the project's eastern end. There are no substantial improvements identified for this location and no impacts to the property's access road are anticipated. Primarily, the DKP is preserved for its connection with the lake history and dam construction (preservationist purposes). Visitors can go to the location and view the lake and the Dam Keeper's house. During and subsequent to construction, visitors would continue to have access to the property. The proposed project would not impact the preservationist function of the property or the ability to visit/view the property and/or lake.

#### **4.3.5.3 Big Bear Lake Shoreline**

Alternative 5 would require the permanent use of 0.04 hectare (0.10 acre) (see Figure 4-2) of shoreline for transportation purposes associated with the proposed curve realignment. Temporary occupancy of the shoreline associated with Alternative 5 is 0.1 hectares (0.25 acres). Access to the lakeshore within the construction impact area would be prohibited to all persons other than construction personnel for the duration of construction. This area includes the majority of the south shore along existing SR-18 within the project area (See Figure 4-4). This area is near the water; however, under normal water levels through fishing access along the shoreline would be preserved subsequent to construction (see Section 3.8 of the DEIS/R: Alternative 5 - View C, View D and View G).

#### **4.3.5.3.1 Resources Impacted by Alternative 5 within Big Bear Lake Shoreline**

##### **Visual**

The area where the curve realignment would occur would be visible to shore users within the immediate vicinity (across the lake, or adjacent to this location See DEIS/R Figures 3-17, 3-18, 3-21 and 3-22). The proposed curve realignment would adversely affect the setting but would not substantially impair the shoreline's recreational value. Subsequent to construction, fishing and through shore access would be restored.

#### **Access, Facilities, Functions, and/or Activities Affected**

All non-construction personnel would be excluded from the lakeshore within the construction impact area for the duration of construction. No parking on the shoulders adjacent to the shore or fishing would be allowed within the construction impact areas.

#### **4.3.5.4 Big Bear Lake**

Alternative 5 would not result in any permanent 4(f) use of the lake surface (see Figure 4-2). Public surface water access is prohibited within the project limits except for swimming (see Figure 3-5). Alternative 5 would result in the temporary loss of 0.25 hectare (0.6 acre) of potential swimming area (15 meters [50 feet] from shore) adjacent to the south shoreline during construction. All access to the shoreline adjacent to the proposed alternative, with the exception of construction personnel and equipment, would be prohibited for the duration of construction (3 years).

#### **4.3.5.4.1 Resources Impacted by Alternative 5 within Big Bear Lake**

#### **Access, Facilities, Functions, and/or Activities Affected**

All non-construction personnel would be excluded from the lake adjacent to the construction impact area for the duration of construction. No swimming would be allowed within the construction impact areas. Subsequent to construction, swimming access within the project area would be restored.

Table 4-2 provides a summary of impacts to various resources and compares the approximate costs of the alternatives. The west boat launch was not included in the tables because the impacts would only restrict the boat launch function (private parties would not be able to use the boat launch) for several days a year. Impacts to the west boat launch are exclusive to proposed Alternative 4. No impacts to the west boat launch would occur with either of the other alternatives.

#### **4.4 Draft 4(f) Findings**

Should either build alternative be identified as the preferred alternative in any subsequent FEIS/R, FHWA and the Department would prepare a Final Section 4(f) Evaluation regarding the use of Section 4(f) property by the proposed project, including discussion of avoidance alternatives and measures to minimize harm. The Final 4(f) Evaluation would accompany the FEIS/R (23 CFR 771.135(j), (l).))

## **5.0 Measures to Minimize Harm To 4(f) Eligible Resources**

### **5.1 Context Sensitive Design**

The Department has adopted a policy for Context Sensitive Solutions as a way to improve the planning, design, construction, maintenance and operation of transportation projects by taking into account community values and the natural environment, and not just transportation objectives.

Context sensitive design/solutions are also a requirement on Federal aid projects as authorized through the Intermodal Surface Transportation Efficiency Act of 1991 and the National Highway System Designation Act of 1995. Through this legislation, Congress provided dramatic new flexibilities in funding, stressed the importance of preserving historic and scenic values, and provided for enhancing communities through transportation improvements. This policy has been considered for the Big Bear Lake Bridge Replacement Project throughout the planning phase through coordination with the different affected agencies, community meetings, and the environmental process.

The proposed bridge would be located in an area containing visual, historical and biological resources that are considered important by the community and region. The proposed project derives great benefit from the use of context-sensitive solutions during the planning stage. Context-sensitive solutions resulting in the projects compatibility with the existing natural environment and protection of existing environmental resources within the project area were integrated into the development of the proposed project. Context-sensitive solutions would continue to be developed and refined throughout final design and construction of the proposed project.

## **Alternatives 4 & 5**

### **Alignments:**

The proposed alignments for the build alternatives have been revised to minimize impacts on the 4(f) properties (see Chapter 2; Section 2.2, Figures 2-15 and 2-16). Revised alignments maximize the use of the existing roadway and minimize use of the 4(f) properties; however, due to the proximity of the 4(f) properties to the proposed alignments, both temporary and permanent uses of these properties are unavoidable (see Section 2.3).

#### Bridge Width:

Originally all proposed build alternatives had a bridge width of 22.4 meters (73.4 feet), which included: four 3.6-meter (12-foot) lanes, 2.5-meter (8-foot) shoulders and two 1.5-meter (5-foot) sidewalks). The bridge width of the proposed build alternatives identified within the DEIS/R were reduced 18.3 meters (60 feet) wide and include: three 3.6-meter (12-foot) lanes with 3-meter (10-foot) shoulders and one 1.5-meter (5-foot) sidewalk. Based on the existing and future travel demand, the Department has determined that the proposed bridge is minimized to the maximum extent practicable to meet the required 20-year design life of the project.

#### Construction Impact Areas:

The construction impact areas were minimized to the maximum extent practicable based on the minimum amount of area required to construct the proposed alternatives as recommended by the Department's Division of Structures Design. The construction impact areas will be fenced to prevent the contractor's access to areas outside of the proposed construction impact footprint.

#### Retaining Walls:

Subsequent to selection of a preferred alternative, a geotechnical investigation will be completed to determine the stability of the rock within the project area. Based on cuts along Highway 18, it is likely that no retaining walls would be required. Stepping back the slope in lieu of retaining walls would help to minimize visual impacts of the project on the 4(f) properties.

## **5.2 Minimization and Enhancement Measures**

### **Alternatives 4 & 5**

Visual Impacts to 4(f) Properties:

Due to the adverse modification of the setting associated with both of the proposed alternatives, the Department has identified measures to minimize the visual impacts and enhance the setting to the maximum extent practicable. These measures are applicable to both of the proposed build alternatives, and a final plan would be developed subsequent to selection of a preferred alternative. A summary of the visual minimization and enhancement measures are provided below and a more detailed description of these measures is provided in Chapter 3, Section 3.8 of this DEIS/R. Additionally, impacts to the setting would be enhanced through the MOA regarding the Section 106 Adverse Finding of Effect related to the modification of the setting.

**Visual Minimization and Enhancement Measures**

Structure – Design the bridge in a manner that its form, scale, color, and details are enhanced with respect to the characteristic natural landscape;

Approach Roadways – Design the east and west bridge approaches in a manner that the visual effect of their alignment, width, and profile is minimized with respect to the characteristic natural landscape;

Earthwork – Blasting and/or excavation techniques will be designed in a manner such that the granite rock outcroppings will retain their irregular shape to the maximum extent possible and such that vibration associated with these techniques would have de minimis effects on the three eligible resources;

Retaining walls – The retaining wall design will enhance, to the maximum extent practicable, the form, scale, material/texture, color and details of the characteristic natural landscape;

Highway appurtenances – Any appurtenances (i.e., lights, signs, traffic control devices and guard rails) will be designed in a manner that their form, scale, color, spacing, and configuration of the standards or supports are enhanced with respect to the characteristic natural landscape; and

Landscape plan – In addition to revegetating areas disturbed during construction, minimization of negative visual contrast between the structures, appurtenances and the characteristic natural landscape should be considered where appropriate. This plan should retain the maximum amount of existing vegetation and rock features, by clearing or removing only that which is determined to be necessary. Additionally, a

sensitive composition of new vegetation (e.g., used to screen built elements, planting holes/pockets in rocks and retaining walls) should be included to reduce visual contrasts of form, scale, color, texture and line.

#### Wildlife:

All impacts to potential bald eagle perch trees within the 4(f) properties would be recreated at a ratio of 2 to 1 (see Section 3.20.6 of the DEIS/R). Subsequent to selection of a preferred alternative and through consultation with the USFS and the USFWS, the final number of potential perch trees will be determined based on observation from the year prior to construction. Perch trees would be created after the eagles leave for the summer and prior to return in winter.

All potential southern rubber boa habitat within the 4(f) properties would be compensated at a ratio of 3 to 1 (see Section 3.20.6 of the DEIS/R) through habitat acquisition. Additionally, prior to commencing construction activities the construction impact areas will be surveyed to remove any southern rubber boas from the project area. Exclusion fencing would be erected and maintained by the contractor throughout the construction duration. A biologist experienced in handling southern rubber boa would also be required to be on call to remove any snakes that may be discovered during construction.

#### Vegetation:

With both build alternatives, the majority of the impacts to vegetation within the 4(f) properties is permanent; however, all disturbed areas affected by the construction of the proposed project would be revegetated in accordance with the conceptual revegetation plan (see Appendix E of the DEIS/R).

#### Big Bear Lake/Shoreline:

To minimize any harm to the lake/shoreline use as a recreational resource, all work will be limited to weekdays excluding holidays. Additionally, any impacts to lakeshore swimming and fishing access would be restored subsequent to construction of a new bridge and before the removal of the existing bridge. Any barges that may be required for construction of the proposed project would be stored in an area that would not disrupt normal lake activities. Barge storage areas would be determined through further consultation with the BBMWD. Subsequent to construction, the barges would be removed from the lake and disturbed shoreline areas would be restored in accordance with the preliminary restoration plan.



BBMWD West Boat Launch:

If necessary, impacts to the west boat launch would be minimized by using it on weekdays prior to Memorial Day and after Labor Day to launch/remove construction equipment. Additionally, if any damage to the Launch occurs it would be fixed immediately after launching and or removing equipment. The time period prior to repairing any potential damage associated with launching and removing barges will not exceed two days.

SSHD and DKP:

The permanently impacted areas of the SSHD and the DKP would be considered within the Section 106 MOA for mitigating impacts to these properties. Mitigation for the actual land use for the 4(f) impacts is not appropriate because the USFS owns all land within the project area. No benefit for the continued preservation of these properties would be achieved by purchasing land at an offsite location. Subsequent to the selection of a preferred alternative, the Section 106 MOA and mitigation would also minimize the 4(f) impacts to the maximum extent practicable.

**5.3 USFS Recommended Compensation for 4(f) Impacts**

As part of the coordination with the USFS regarding the potential permanent use of 4(f) properties for transportation purposes associated with the proposed build alternatives, the USFS submitted a letter requesting that the Federal Highway Administration consider the following options as compensation for the permanent loss of portions of the Big Bear Lake Shoreline, the Dam Keeper's Property (DKP) and the Big Bear Lake Southwest Shore Historic District (SSHD). Recommendations made by the USFS are summarized below and the letter is provided in Attachment A.

- The USFS is concerned about the adverse indirect effects to the DKP and SSHD associated with both of the build alternatives and is requiring that they are a signatory agency to the pending Section 106 MOA;
- Big Bear Lake Shoreline – The USFS requests the relinquishment of all paved surfaces outside of a preferred alternative to the Forest Service for potential parking areas and/or improved access for fishing and other shoreline recreational opportunities. The USFS also requests additional improvements depending on the preferred alternative which could include construction of restroom facilities, an ADA fishing pier and other general access improvements; and

- Dam Keeper's Property – Stabilization and/or restoration of the Dam Keeper's House as determined appropriate subsequent to selection of the preferred alternative.

## **6.0 Coordination**

### **6.1 Historical Resources**

In accordance with 36 CFR 800.4(a)(iii), coordination was initiated with local governments, public and private organizations, and other parties prior to preparation of the HPSR. The Department initiated an agency and public scoping process in April 1990. Interviews with representatives of key agencies and local special interest groups were conducted on April 25-27, 1990. An agency scoping meeting was held on June 5, 1990 with twelve Federal, State and local agencies.

At the request of the USFS, a Project Development Team meeting was held July 9, 1990 in Fawnskin to discuss historic resources and visual impacts. No new information was forthcoming with regard to historic properties within or immediately adjacent to the project's Area of Potential Effect. A number of people expressed concern about the undertaking causing a loss of environmental and scenic resources, and impacting historic/cultural resources such as the Dam Keeper's House and the Big Bear Lake Southwest Historic Shore District. In March 1991 copies of the HPSR were submitted to the Big Bear Valley Historical Society, the USFS (San Bernardino National Forest Ranger District) for their review and comment. To date, no written comments on the HPSR were received.

A public participation meeting was held in Fawnskin on August 8, 1997 to discuss the Finding of Effect. On January 13, 1998 SHPO concurred with FHWA determination of effect that both Alternatives 4 & 5 will have an adverse effect on the Dam Keeper's House and the Big Bear Lake Southwest Shore Historic District.

### **6.2 San Bernardino National Forest Ranger District**

On March 3, 2003 a letter was sent to the San Bernardino National Forest Supervisor requesting concurrence with the Department's analysis of 4(f) eligible resources on lands administered by the USFS within the project area. The letter also requested the USFS to identify any additional resources that the USFS believe might meet the criteria of a section 4(f) eligible property. On June 30, 2003 the Forest Supervisor concurred with the Department's analysis and did not identify any additional

resources administered by the USFS that met the criteria of a 4(f) eligible resource (see Attachment A).

In December 2003, a meeting was held at the Caltrans District 8 office with personnel from the San Bernardino National Forest Supervisor Office to discuss compensation/mitigation for the impacts to the eligible properties. The USFS provided their recommendations for compensation/mitigation in the letter dated June 1, 2004 (see Attachment A).

### **6.3 Big Bear Municipal Water District**

On March 3, 2003 a letter was sent to the Big Bear Municipal Water District requesting concurrence with the Department's analysis of 4(f) eligible resources under its jurisdiction. On March 13, 2003 the BBMWD responded that all areas identified within the analysis, with the exception of the lake itself and 1884 Bear Valley Dam, were under the jurisdiction of the USFS. The area identified as a possible boat/barge launch site for the project is under BBMWD jurisdiction via a special use permit from the USFS. The letter stated that the boat ramp would be available for use during the project, so long as the contractor coordinates with the district prior to using the facility. The BBMWD indicated that the Bear Valley Mutual Water Company might also own land within the project area. The Bear Valley Mutual Water Company was contacted by phone and indicated that it owns various easements around the lake but none within the project area.

## Attachment A

**DEPARTMENT OF TRANSPORTATION**

DISTRICT 8  
ENVIRONMENTAL PLANNING (MS 822)

464 W. FOURTH STREET, 6<sup>TH</sup> FLOOR  
SAN BERNARDINO, CA 92401-1400

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construction of either the lake crossing or the canyon crossing, alternatives 4 and 5, respectively. The Department identified no 4(f) resources with these areas (see figure 3).

In accordance with Title 49, section 303 of the USC 4(f), where federal lands or other public land holdings (e.g., state forests) are administered under statutes permitting management for multiple uses and are managed for multiple uses, section 4(f) applies only to those portions of such lands which function for, or are designated in the plans of the administering agency as being for, significant park, recreation, or wildlife and waterfowl purposes. The officials having jurisdiction over the lands shall make the determination as to which lands so function, or are so designated, and the significance of those lands. The Federal Highway Administration (FHWA) will review this determination to assure its reasonableness. The determination of significance shall apply to the entire area of such park, recreation, or wildlife and waterfowl refuge sites.

The Department is requesting USFS concurrence that the Big Bear Lake shore and Big Bear Lake represent significant recreational resources. The Department also asks USFS to identify any additional land/resources within the proposed construction impact areas or staging/storage/launch areas that USFS would consider as significant for park, recreation, or wildlife and waterfowl purposes.

If USFS determines there are additional lands within these areas (see figures 1, 2, and 3) eligible for consideration under Title 49, section 303 of the USC 4(f), please provide documentation (i.e. location, reason the property/resource is eligible, and under what category: park, recreation area, wildlife refuge, or historic site) to be included in FHWA's determination of the eligible properties to be included in the 4(f) analysis within the DEIS/EIR.

Your timely response will assist us in advancing completion of the section 4(f) evaluation and DEIS/EIR for the Big Bear Bridge Replacement Project. If you have any questions, please contact Jason Wash, Associate Environmental Planner, at (909) 383-7555 or I can be reached at (909) 383-6387.

Sincerely,



NATHANIEL PICKETT  
Office Chief  
Biological Studies and Permits Branch

Attachments: Figures 1, 2, and 3

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**DEPARTMENT OF TRANSPORTATION**

DISTRICT 8

ENVIRONMENTAL PLANNING (MS 822)

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February 27, 2003

Ms. Sheila Hamilton  
Big Bear Municipal Water District  
P.O. Box 2863  
40524 Lakeview Drive  
Big Bear Lake, CA 92315

Dear Ms. Hamilton:

The California Department of Transportation (Department) is currently in the process of preparing the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) for the Big Bear Bridge Replacement Project (post mile 44.2-44.7) near the city of Big Bear Lake in San Bernardino County. In accordance with Title 49, section 303 of the United States Code (USC) 4(f), formerly section 4(f) of the Department of Transportation Act, "....a special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." An analysis of impacts to public parks and recreation lands, wildlife and waterfowl refuges, and historic sites will be provided in a section 4(f) analysis within the DEIS/EIR.

The Department has identified the Big Bear Lake and the lakeshore as significant recreational resources deserving special consideration as eligible 4(f) resources. The Department is requesting the Big Bear Municipal Water District (BBMWD), resource manager/owner, provide written concurrence with the Department's determination. The Department is also requesting BBMWD to review the attached figures 1, 2, and 3, and identify any resources owned by the water district that meet the criteria of being a publicly owned public park, recreation area, wildlife and waterfowl refuge, or historic site within/near either the proposed construction impact areas on figure 1 or within the proposed construction staging/storage/barge launch areas identified in attached figures 2 and 3.

The Federal Highway Administration (FHWA) will review this determination to assure its reasonableness. The determination of significance shall apply to the entire area of such park, recreation, wildlife and waterfowl refuge, or historic sites.

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Ms. Sheila Hamilton  
February 27, 2003  
Page 2

If the BBMWD determines there are additional lands within these areas (see figures 1, 2, and 3) eligible for consideration under Title 49, section 303 of the USC, please provide documentation (i.e. location, reason the property/resource is eligible, and under what category: park, recreation area, wildlife refuge, or historic site) to be included in FHWA's determination of the eligible properties to be included in the 4(f) analysis within the DEIS/EIR.

Your timely response will assist us in advancing completion of the section 4(f) evaluation and DEIS/EIR for the Big Bear Bridge Replacement Project. If you have any questions, please contact Jason Walsh, Associate Environmental Planner, at (909) 383-7555 or I can be reached at (909) 383-6387.

Sincerely,



NATHANIEL PICKETT  
Office Chief  
Biological Studies and Permits Branch

Attachments: Figures 1, 2, and 3

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United States  
Department of  
Agriculture

Forest  
Service

San Bernardino  
National Forest

1824 S Commercenter Circle  
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909-383-5588 (Voice)  
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---

File Code: 2720

Date: 7/3/03

Mr. Steven Keel  
Deputy District Director,  
Environmental Planning  
CALTRANS, District 8  
San Bernardino, CA 92401-1400

Dear Mr. Keel:

This is in response to your letter dated June 6, 2003 regarding the Big Bear Bridge Replacement Project. We concur with your assessment that the Big Bear Lake shore and Big Bear Lake represent significant recreational resources. We particularly hope that disruption to the fishing opportunities near the dam can be minimized. We have not identified any additional lands or resources within the proposed construction impact areas, or staging, storage or launch areas that the Forest Service would consider as significant for park, recreation, wildlife or waterfowl purposes, nor have we identified any additional historic sites or properties.

/s/ **Michael Florey**

for  
GENE ZIMMERMAN  
Forest Supervisor



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## Big Bear Municipal Water District

### Lake Management

Board of Directors  
Bob Ludecke - Division 1  
Chuck Rounds - Division 2  
Skip Suhey - Division 3  
John Eminger - Division 4  
George Stanfield - Division 5

March 13, 2003

Mr. Nathaniel Pickett  
Department of Transportation  
District 8, Environmental Planning (MS 822)  
464 W. Fourth Street, 6<sup>th</sup> Floor  
San Bernardino, CA 92401-1400

### RE: DEIS/EIR, FOR THE BIG BEAR BRIDGE REPLACEMENT PROJECT

Dear Mr. Pickett,

Thank you for the opportunity to comment on the above mentioned project your Department is currently reviewing. The Big Bear Lake shoreline from the Duane Boyer West Public Launch Ramp to Bear Valley Dam and all areas identified in your photos are Forest Service jurisdiction. The West Launch Ramp is under our jurisdiction and would be available for launching of equipment needed for the project, so long as the contractor contacts our District prior to using this facility. The following agencies need to be notified to determine if other permits would be required.

1. California Department of Fish and Game
2. Santa Ana Regional Water Quality Control Board
3. Department of Water Resources -Division of Safety of Dams
4. U.S. Army Corps of Engineers
5. City of Big Bear Lake

If you have any questions, please give me a call.

Sincerely,

Gene Martin  
General Manager

P.O. Box 2863 • Big Bear Lake, CA 92315-2863 • (909) 866-5796 • Fax (909) 866-6485 • E-MAIL:bbmwd@bbmwd.org



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Forest  
Service

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1824 S Commercenter Circle  
San Bernardino, CA 92408-3430  
Phone: 909-382-2066  
Fax: 909-383-5770  
TTD: 909-383-5616

---

File Code: 2730-2

Date:

Gary Wintergerst  
Project Manager  
CALTRANS District 8  
464 West Fourth Street

JUN - 1 2004

Dear Mr. Wintergerst:

We have reviewed the information provided by Caltrans regarding 4(f) requirements and offer the following comments:

After reviewing the two alternatives (Avoidance Cut and Avoidance Tunnel) that avoid all impacts to resources protected under Section 4(f) (49 U.S.C. 303), we do not prefer either of these alternatives over the proposed build alternatives (Alternatives 4 and 5). The Avoidance Cut Alternative has substantially greater impacts to sensitive resources and offers no additional benefit to the forest users that would justify associated environmental and/or financial costs. Based on the information you have provided, the Avoidance Tunnel Alternative would transform the sense of arrival to Big Bear Lake. The views associated with the existing alignment are in an area of visual retention, as designated by the Forest Land and Resource Management Plan, and are of high scenic value along the Rim Of the World Scenic Byway. The Avoidance Alternatives would also eliminate some of the closest driving along Big Bear Lake and the Dam that is highly valued by forest users. Additionally, we see no additional benefits to the forest users that would justify significantly increasing the cost of the proposed project when compared with Alternatives 4 and 5.

We have been involved with the scoping of the proposed project since its inception and will continue to be involved for the duration of the proposed project. Although both of the build alternatives would require the permanent incorporation of small areas (1/2 acre or less for either Alternative 4 or 5) of multiple properties protected under section 4(f) into transportation system, it would not prevent the public from utilizing these areas for their intended purposes of historic preservation and recreation. Caltrans, the Federal Highway Administration and the USFS have worked to avoid and minimize impacts to 4(f) resources as well as all other resources within the proposed project area as required by 49 U.S.C. 303 and the National Environmental Policy Act. The USFS will continue to work with our partners to minimize impacts to the maximum extent practicable during final design of the project.



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Additionally, the USFS would like to recommend that the Federal Highway Administration consider the following options as compensation for the permanent loss of the eligible 4(f) properties that are administered by the USFS:

**Big Bear Lake Shoreline:** Relinquishment of the existing paved surfaces (outside of any preferred alignment) to the USFS to use for potential parking areas and improve access for fishing. This may require construction of a turnaround for recreation vehicles near the south end of the dam. Associated with the increased use, we request that a restroom be constructed near the south end of the dam. We also recommend the construction of a fishing pier which would allow fishing access for individuals with physical disabilities to an area that is considered to have some of the best fishing in the lake. In Alternative 5, we are additionally concerned about elimination of parking adjacent to the existing Highway 18 on the north side of the lake as well as potentially losing visitor access to the lake in this vicinity.

**Dam Keeper's Property:** Stabilization and/or restoration of the Dam Keepers House, as determined appropriate, for its preservation based on its significance to the historical setting of both Bear Valley and Big Bear Lake. Over the years, substantial deterioration of the existing structure has occurred. If restoration is not feasible, stabilization of the existing structure to the maximum extent practicable is highly desirable. Additionally, we are concerned about the indirect and adverse impacts either of the proposed build alternatives would have on the setting of the Dam Keeper's Property. We understand these impacts have been addressed within the Section 106 Finding of Effect for the project and will be minimized to the maximum extent practicable within the 106 Memorandum of Agreement. We request that we be a signatory agency on the Section 106 MOA for the proposed project.

**Big Bear Lake Southwest Shore Historic District (SSHD):** Neither alternative impact any of the existing SSHD structures; however, there is potential to impact the access road just beyond the southern bridge abutment of Alternative 4 and the curve realignment of Alternative 5 on the east side of State Route 18. Access to the cabins should be maintained throughout construction. The permanent impacts identified are located along the outer edge of the historic district boundary. Although the Forest Service considers the loss of land minor, and impacts would not affect the historic districts eligibility for the Nation Register of Historic Places, we are concerned about the indirect and adverse impacts either of the proposed alternative would have on the setting. We understand these impacts have been addressed within the Section 106 Finding of Effect for the project and will be minimized to the maximum extent practicable within the 106 Memorandum of Agreement. The Forest Service will ensure this by requiring that our agency be a signatory agency on the Section 106 MOA. The Forest Service does not request any compensation for the permanent loss of the land within the SSHD for either Alternative 4 or 5.



If the permanent impacts to any of the 4(f) eligible properties change during final design of a preferred alternative, we reserve our right to request further commitments commensurate with the impact. We look forward to reviewing both the Draft Environmental Document and 4(f) analysis.

Sincerely,



GENE ZIMMERMAN  
Forest Supervisor



# Appendix G HPSR (May 1991) and FOE (January 1998) Concurrence Letters

---

STATE OF CALIFORNIA — THE RESOURCES AGENCY

PETE WILSON, Governor

OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION  
P.O. BOX 942896  
SACRAMENTO 94296-0001  
(916) 445-8006  
FAX: (916) 322-6377



May 2, 1991

REPLY TO: FHWA910404A

Lyle P. Renz, Acting Division Administrator  
Federal Highway Administration  
P.O. Box 1915  
SACRAMENTO CA 95812-1915

RE: Big Bear Dam Bridge (#54-310) Replacement Project, San  
Bernardino County, California

Dear Mr. Renz:

The State Office of Historic Preservation (OHP) has reviewed the above-referenced project in accordance with 36 CFR 800, regulations of the Advisory Council on Historic Preservation. We appreciate the thorough documentation your staff submitted, including the clarity of both text and illustrations.

We agree with that you have taken reasonable measures to identify all historic properties within the Area of Potential Effects (APE). Seven components of site CA-SBr-6611H were considered for eligibility individually and as a district.

Three of the seven components have been previously determined eligible by the SHPO and the Forest Service. These include the 1884 Bear Valley Dam, the Dam Keeper's House, and the 1911 Bear Valley Dam and Bridge #54-310. You have presented a compelling argument for re-classifying the 1911 Bear Valley Dam and Bridge #54-310 as ineligible due to the loss of integrity created by the cement in-filling of the arched structure which occurred as part of a seismic reinforcement project.

Apparently, this work was completed prior to receiving a fully executed Memorandum of Agreement (M.O.A.) to be signed by the Forest Service, the SHPO, the Advisory Council, the Big Bear Municipal Water District and the Army Corps of Engineers. We have no records of consultation on the plans and specifications for the seismic stabilization that occurred in 1988.

Regardless of the circumstances leading up to the in-filling, we concur with your judgement that the stabilization work did alter the integrity of the structure significantly and the 1911 Bear Valley Dam and Bridge #54-310 is no longer eligible for the National Register. We agree that the other two properties are still eligible.

Lyle P. Renz  
May 2, 1991  
Page Two

We agree that the remaining four components, the quarry, the rock splitting area, the blacksmith/warehouse, and the water diversion system do not appear to be individually eligible due to loss of integrity or weak association with the construction of the 1883 and 1911 dams.

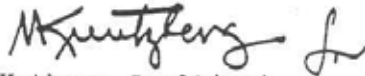
Further, we agree that the properties are not eligible as an historic district as they do not retain sufficient integrity to convey significance associated with the construction and operation of the dams. The 1883 dam is submerged and rarely visible above low water levels. The 1911 dam has now lost its integrity due to the type of the seismic stabilization work.

As a final point, we concur with your determination that the Big Bear Southwest Shore Historic District (1911-1941) is eligible under Criteria "A" and "C" at the local level of significance. The changes to the District contributors are outlined in your report titled: Historic Architectural Survey Report for Big Bear Bridge Replacement Project on Highway 18 at Big Bear Lake, San Bernardino County, California. You submitted this report as Appendix B. Contributing and non-contributing properties are listed on pages 21-61 of Appendix B. The district boundary is shown on the map on page 62, map 3.

At present four alternative plans are under consideration for the project APE. Apparently, Caltrans and FHWA's preferred plan is to replace the existing bridge and "correct small radius curves along the south shore of Big Bear Lake" (Appendix C, Oct. 1990). Please inform our office as to what measures will be taken to avoid effects to the eligible properties that lie within the APE.

If we can be of any further assistance, please contact either Hans Kreutzberg at (916) 322-9621 or Leslie Hartzell at (916) 322-9602.

Sincerely,



Kathryn Gualtieri  
State Historic Preservation Officer

cc: Forest Supervisor, San Bernardino National Forest

STATE OF CALIFORNIA — THE RESOURCES AGENCY

OFFICE OF HISTORIC PRESERVATION

DEPARTMENT OF PARKS AND RECREATION

P.O. BOX 942896  
SACRAMENTO 94296-0001  
(916) 653-9624  
FAX: (916) 653-9624

RECEIVED

DEC 15 1997

PETE WILSON, Governor

FHWA



December 4, 1997

FHWA910404A

Jeffrey A. Lindley, Division Administrator  
Federal Highway Administration  
Region Nine, California Division  
980 Ninth Street, Suite 400  
SACRAMENTO CA 95814-2724

Re: Finding of Effect for the Big Bear Lake Bridge Project,  
San Bernardino County.

Dear Mr. Lindley:

Thank you for submitting to our office your October 14, 1997 letter and Finding of Effect (FOE) documentation regarding the proposed replacement of the Big Bear Lake bridge (BR. #54-310) on State Route (SR) 18 (08-SBD-18-44.2/44.7), near the City of Big Bear Lake, San Bernardino County. The Federal Highway Administration (FHWA) is considering two alternatives (Nos. 4 and 5 as described in the FOE) for the project. The descriptions for each of the alternatives under consideration by the FHWA are outlined on pages 11 - 15 of the FOE. Three historic properties located within the project Area of Potential Effects (APE), the Dam Keeper's House, the 1884 Bear Valley Dam (submerged), and the Big Bear Southwest Shore Historic District, have been previously determined, by consensus, to be eligible for inclusion on the National Register of Historic Places (NRHP).

You are seeking our comments on your determination of the effects either of the two proposed alternatives will have on the aforementioned historic properties in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act. Our review of the submitted documentation leads us to concur with your determination of the following:

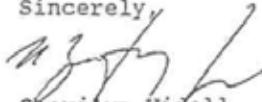
- o Alternative 4, as described, will have an adverse effect on the Dam Keeper's House and the Big Bear Southwest Shore Historic District. This alternative would alter both properties' character of setting, introduce visually intrusive elements connected with the final form, shape, and materials of the new bridge, and diminish the setting within the property boundary of the district for three of its contributing structures.
- o Alternative 5, as described, will have an adverse effect on the Dam Keeper's House and the Big Bear Southwest Shore Historic District. The integrity of the rural and open space setting for both properties will be altered and diminished by visually intrusive elements of the new bridge.

- o Neither proposed project alternative appears to have an effect on the submerged 1884 Bear Valley Dam. Neither alternative will significantly alter or change any of the design or engineering characteristics that contribute to the dam's eligibility for inclusion on the NRHP.
- o In response to your letter of October 24, 1997, regarding the redefined boundaries of the Big Bear Southwest Shore Historic District, we see no significant reason why the boundaries should be changed if they are being changed just for the purposes of this project. The FOE determination would still remain the same regardless of the inclusion or exclusion of the undeveloped portions of the affected district. It is not clear in the documentation whether the undeveloped portions of affected parcels that are excluded in the redrawn historic district were elements of a setting that may have contributed to the eligibility of the district or were marginal to the overall integrity of the district. In either case, their inclusion or exclusion within or without the district does not minimize the visual impacts of the proposed new bridge on the district's ability to convey overall feeling and association with its historical period of significance.

We are pleased to note that a draft Memorandum of Agreement (MOA) is being prepared by FHWA to address the effects of the proposed project alternatives on the aforementioned historic properties. We look forward to reviewing and commenting on the draft MOA.

Thank you again for seeking our comments on your project. If you have any questions, please contact staff historian Clarence Caesar at (916) 653-8902.

Sincerely,



Cheryl W. Widell  
State Historic Preservation Officer





# Appendix H Floodplain Location Summary Reports

## Alternative 4

HIGHWAY DESIGN MANUAL

800-11  
May 1, 2001

Figure 804.7A

### Technical Information for Location Hydraulic Study

Dist. 08 Co. SBd Rte. 18 K.P. 71.13/71.94  
EA 22700 Bridge No. 54-510  
Floodplain Description Big Bear Lake, California.

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Construct bridge over lake (Alternative #4).

2. ADT: Current 6,740 Projected yr 2028 8,700

3. \* Hydraulic Data: Base Flood  $Q_{100} =$  \_\_\_\_\_  $m^3/s$

WSE<sub>100</sub> = \_\_\_\_\_ The flood of record, if greater than  $Q_{100}$ :

$Q =$  \_\_\_\_\_  $m^3/s$

WSE = \_\_\_\_\_

Overtopping flood  $Q =$  \_\_\_\_\_  $m^3/s$

WSE = \_\_\_\_\_

Are NFIP maps and studies available?

Yes ☒ No \_\_\_\_\_

\*  $Q_{100}$  (into lake) =  $526 m^3/s$

$Q_{100}$  (out of lake) = varies  $\leq 286 m^3/s$

Bridge will not come close to overtopping.

Yes \_\_\_\_\_ No \_\_\_\_\_

4. Is the highway location alternative within a regulatory floodway?

☒

\_\_\_\_\_

5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential  $Q_{100}$  backwater damages:

A. Residences?

\_\_\_\_\_ ☒

B. Other Bldgs?

\_\_\_\_\_ ☒

C. Crops?

\_\_\_\_\_ ☒

D. Natural and beneficial Floodplain values?

\_\_\_\_\_ ☒

6. Type of Traffic:

A. Emergency supply or evacuation route?

☒ \_\_\_\_\_

B. Emergency vehicle access?

☒ \_\_\_\_\_

C. Practicable detour available?

☒ \_\_\_\_\_

D. School bus or mail route?

☒ \_\_\_\_\_

7. Estimated duration of traffic interruption for 100-year event 0 hours.

800-12

## HIGHWAY DESIGN MANUAL

May 1, 2001

8. Estimated value of Q<sub>100</sub> flood damages (if any) - moderate risk level.
- |    |          |    |       |
|----|----------|----|-------|
| A. | Roadway  | \$ | _____ |
| B. | Property | \$ | _____ |
|    | Total    | \$ | 0     |
9. Assessment of Level of Risk  
Low ☒ Moderate ☐ High ☐  
For High Risk projects, during design phase, additional Design Study Risk  
Analysis may be necessary to determine design alternative.

PREPARED BY:

John M. Rogers Date 9-29-04  
Signature - Dist. Hydraulic Engineer  
(Item numbers 3, 4, 5, 7, 9)

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible  
Floodplain development? No ☒ Yes ☐

If yes, provide evaluation and discussion of practicability of alternatives in accordance with  
23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study  
Shall be retained in the project files.

H. Han Date 10-07-04  
Signature - Dist. Project Engineer  
(Item numbers 1, 2, 6, 8)

## HIGHWAY DESIGN MANUAL

800-13

May 1, 2001

Figure 804.7B

## Floodplain Evaluation Report Summary

Dist. 08 Co. SBd Rte. 18 K.P. 71.13 / 71.94  
 Project No. EA 22700 Bridge No. 54-310  
 Limit \_\_\_\_\_

Floodplain Description

Big Bear Lake, California.

	Yes	No
1. Is the proposed action a longitudinal encroachment of the base floodplain?	_____	<input checked="" type="checkbox"/>
2. Are the risks associated with the implementation of the proposed action significant?	_____	<input checked="" type="checkbox"/>
3. Will the proposed action support probable incompatible floodplain development?	_____	<input checked="" type="checkbox"/>
4. Are there any significant impacts on natural and beneficial floodplain values?	_____	<input checked="" type="checkbox"/>
5. Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	_____	<input checked="" type="checkbox"/>
6. Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	_____	<input checked="" type="checkbox"/>
7. Are Location Hydraulic Studies that document the above answers on file? If not explain.	<input checked="" type="checkbox"/>	_____

PREPARED BY:

John M Rogers  
 Signature - Dist. Hydraulic Engineer  
[Signature]  
 Signature - Dist. Environmental Branch Chief  
[Signature]  
 Signature - Dist. Project Engineer

9-29-04  
 Date  
10/12/04  
 Date  
10-07-04  
 Date

## Alternative 5

## HIGHWAY DESIGN MANUAL

800-11  
May 1, 2001

Figure 804.7A

## Technical Information for Location Hydraulic Study

Dist. 08 Co. SBD Rte. 18 K.P. 71.13 / 71.94  
 EA 22700 Bridge No. 54-310  
 Floodplain Description Big Bear Lake, California, just downstream  
of dam.

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Construct bridge over canyon (Alternative #5).

2. ADT: <sup>yr 2008</sup> Current 6,740 Projected (yr 2028) - 8,700

3. Hydraulic Data: Base Flood  $Q_{100} = \underline{286} \text{ m}^3/\text{s}$   
 WSE<sub>100</sub> = \_\_\_\_\_ The flood of record, if greater than  $Q_{100}$ :

$Q = \underline{\hspace{2cm}} \text{ m}^3/\text{s}$  WSE = \_\_\_\_\_

Overtopping flood  $Q = \underline{\hspace{2cm}} \text{ m}^3/\text{s}$  WSE = \_\_\_\_\_

Are NFIP maps and studies available? Yes ☒ No ☐

4. Is the highway location alternative within a regulatory floodway?

Yes \_\_\_\_\_ No ☒

5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential  $Q_{100}$  backwater damages:

- |  |       |                                     |
|--|-------|-------------------------------------|
| A. Residences?                               | _____ | <input checked="" type="checkbox"/> |
| B. Other Bldgs?                              | _____ | <input checked="" type="checkbox"/> |
| C. Crops?                                    | _____ | <input checked="" type="checkbox"/> |
| D. Natural and beneficial Floodplain values? | _____ | <input checked="" type="checkbox"/> |

6. Type of Traffic:

- |  |                                     |       |
|--|-------------------------------------|-------|
| A. Emergency supply or evacuation route? | <input checked="" type="checkbox"/> | _____ |
| B. Emergency vehicle access?             | <input checked="" type="checkbox"/> | _____ |
| C. Practicable detour available?         | <input checked="" type="checkbox"/> | _____ |
| D. School bus or mail route?             | <input checked="" type="checkbox"/> | _____ |

7. Estimated duration of traffic interruption for 100-year event 0 hours.

800-12

## HIGHWAY DESIGN MANUAL

May 1, 2001

8. Estimated value of Q100 flood damages (if any) - moderate risk level.

A. Roadway \$ \_\_\_\_\_  
 B. Property \$ \_\_\_\_\_  
 Total \$ 0

9. Assessment of Level of Risk

Low ☒ Moderate ☐ High ☐

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

PREPARED BY:

John M. Rogers  
 Signature - Dist. Hydraulic Engineer  
 (Item numbers 3, 4, 5, 7, 9)

9-29-04  
 Date

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? No ☒ Yes ☐

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study Shall be retained in the project files.

John M. Rogers  
 Signature - Dist. Project Engineer  
 (Item numbers 1, 2, 6, 8)

10-07-04  
 Date

## HIGHWAY DESIGN MANUAL

800-13

May 1, 2001

Figure 804.7B

## Floodplain Evaluation Report Summary

Dist. 08 Co. SBD Rte. 18 K.P. 71.13/71.94  
 Project No. 22700 Bridge No. 54-310  
 Limit \_\_\_\_\_

Floodplain Description Big Bear Lake, California, just downstream of dam.

	Yes	No
1. Is the proposed action a longitudinal encroachment of the base floodplain?	_____	<input checked="" type="checkbox"/>
2. Are the risks associated with the implementation of the proposed action significant?	_____	<input checked="" type="checkbox"/>
3. Will the proposed action support probable incompatible floodplain development?	_____	<input checked="" type="checkbox"/>
4. Are there any significant impacts on natural and beneficial floodplain values?	_____	<input checked="" type="checkbox"/>
5. Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	_____	<input checked="" type="checkbox"/>
6. Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	_____	<input checked="" type="checkbox"/>
7. Are Location Hydraulic Studies that document the above answers on file? If not explain.	<input checked="" type="checkbox"/>	_____

## PREPARED BY:

<u>John M Rogers</u>	<u>9-29-04</u>
Signature - Dist. Hydraulic Engineer	Date
<u>[Signature]</u>	<u>10/12/04</u>
Signature - Dist. Environmental Branch Chief	Date
<u>[Signature]</u>	<u>10-07-04</u>
Signature - Dist. Project Engineer	Date





# Appendix I Hazardous Waste Initial Site Assessment

## INITIAL SITE ASSESSMENT (ISA) CHECKLIST

DATE: 7/17/02

### PROJECT INFORMATION

District 8 County SBD Route 18 KiloPost (PM) 71.1-71.9 (44.2-44.7) A 227000

Scope of Project Replacement of Big Bear Bridge and investigative drilling to facilitate project design. Subsequent to replacement, the existing bridge will be removed from on top of the existing dam

Project Engineer Jim Surr

Telephone (909) 388-7145

Environmental Coordinator Taron Walsh

Telephone (909) 383-7555

DATE ISA NEEDED

ASAP

Attach the project location map and an aerial photo to this checklist to show the location of proposed R/W and all known and/or potential hazardous waste sites.

- Project Features: New RW? ☒ Excavation? ☒ Railroad Involvement? ☐  
Structure Demolition/Modification? ☒ Subsurface Utility Relocation? ☐
- Project Setting: Rural ☒ Urban ☐  
Current Land Uses: U.S. Forest Land  
Adjacent Land Uses: U.S. Forest Land  
(Industrial light industry, commercial, agriculture, residential, other)
- Check Federal, State, and local environmental and health regulatory agency records as necessary to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets as needed to provide all information available pertinent to the proposed project. IS PROJECT AFFECTING SITES LISTED ON CORTESE LIST? NO ☒ YES ☐ IF YES, DESCRIBE SITE:

### 4. Conduct Field Inspection

Date

Storage Structures/Pipelines:		Contamination: (spills, leaks, illegal dumping, etc)	Hazardous Materials: (asbestos, lead, etc.)
UST's		Surface Staining	Buildings
Surface tanks		Oil Sheen	Sprayed-on
			Fireproofing
Sumps	Ponds	Odors	Pipe Wrap
Drums	Basins	Vegetation damage	Frangible Tile
Transformers		Other	Acoustical
			Plaster
Landfill			Serpentine
Other			Paint
			Other

### 5. Other comments and/or observations:

NO ADL ABOVE BACKGROUND LEVELS ARE EXPECTED  
WITHIN THE PROJECT LIMITS NO SPECIAL PROVISIONS  
ARE NEEDED.

### ISA DETERMINATION:

Does the project have potential hazardous waste involvement?

NO

If there is known or potential hazardous waste involvement, is additional ISA work needed before task orders can be prepared for the Preliminary Site Investigation? If yes, explain, and give estimate of additional time required:

ISA CONDUCTED BY:

[Signature]

DATE: 7/17/02



## 398

Special Advisory 2004 Revision Transportation Program (RTIP) with Approved Amendments 1-8 - State Highway Projects.doc

## Appendix I \* Project List

TIER 2  
SAN BERNARDINO COUNTY  
STATE HIGHWAYS

LEAD AGENCY	PROJECT ID	AIR BASIN	ROUTE	PMB	PMA	DESCRIPTION	COMPLETION DATE	CONFORMITY CATEGORY
RANCHO CUCAMONGA	SBD41205	SCAB	66	9.8	10.3	FOOTHILL BLVD. (66) I-15 TO ETIWANDA WIDEN NORTHSIDE FROM 2-3 LANES AND CONSTRUCT SIGNAL (Southside widening complete 2-3 lanes)	20070201	NON-FEDERAL/NON-REGIONAL
RANCHO CUCAMONGA	SBD41206	SCAB	66	10.3	10.8	FOOTHILL BLVD. (66) ETIWANDA TO EAST STREET WIDEN FROM 4-6 LANES .INSTALL SIGNAL AND ADD MEDIAN	20080701	NON-FEDERAL/NON-REGIONAL
UPLAND	SBD41434	SCAB	83	11.5	0	ISLAND EUCLID AVE. AT 8TH STREET INTERSECTION IMPROVEMENTS/MODIFICATIONS INCLUDING LEFT TURN POCKET AND PROTECTED LEFT	20041201	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	34011	SCAB	138	0	15.1	NEAR WRIGHTWOOD FROM LA COUNTY LINE TO I-15 IN SAN BERNARDINO COUNTY AND FROM SR18 TO LA/SBD COUNTY LINE - WIDEN FROM 2-4 LANES WITH CONTINUOUS	20081101	<OTHER>
GRAND TERRACE	SBD31850	SCAB	215	1.3	0	IN GRAND TERRACE AT BARTON ROAD INTERCHANGE WIDEN OVERCROSSING FROM 2 TO 4 LANE	20061201	<OTHER>
SAN BERNARDINO	SBD59204	SCAB	215	11.6	0	I-215 AT UNIVERSITY PARKWAY INTERCHANGE - CONSTRUCT SOUTHBOUND UNIVERSITY PARKWAY RIGHT TURN LOOP	20061201	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	34040	SCAB	395	4	48	WIDEN & CONSTRUCT IC'S: FROM I-15 TO SR-18 REALIGN & WIDEN TO 3 MF (FWY) EACH DIR (& IC AT I-15); FROM SR-18 TO PURPLE SAGE WIDEN TO 2 MF (FWY) EACH DIR; FROM PURPLE SAGE TO FARMINGTON WIDEN TO 2 MF (EXPWY) EACH DIR (& FWY IC AT	20111201	<OTHER>
CALTRANS	SBDLS01	VAR	999	0	0	LUMP SUM AT VARIOUS LOCATIONS IN SAN BERNARDINO COUNTY, SAFETY PROJECTS (NON CAPACITY TYPE PROJECTS ONLY AND ELIGIBLE FOR ALL FEDERAL OR STATE FUNDS)	20000604	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	SBDLS02	VAR	999	0	0	LUMP SUM AT VARIOUS LOCATIONS IN SAN BERNARDINO COUNTY , ROADWAY PRESERVATION PROJECTS (NON CAPACITY TYPE PROJECTS ONLY ELIGIBLE FOR ALL FEDERAL OR STATE FUNDS)	20040630	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	SBDLS03	VAR	999	0	0	LUMP SUM AT VARIOUS LOCATIONS IN SAN BERNARDINO COUNTY, ROADSIDE PRESERVATION PROJECTS (NON CAPACITY TYPE PROJECTS ONLY AND ELIGIBLE FOR ALL FEDERAL OR STATE FUNDS)	20030630	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	SBDLS04	VAR	999	0	0	LUMP SUM AT VARIOUS LOCATIONS IN SAN BERNARDINO COUNTY MOBILITY PROJECTS (NON CAPACITY TYPE PROJECTS ONLY AND ELIGIBLE FOR ALL FEDERAL FUNDS OR STATE FUNDS)	20040630	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	SBDLS05	VAR	999	0	0	LUMP SUM AT VARIOUS LOCATIONS IN SAN BERNARDINO COUNTY MINOR PROJECTS (NON CAPACITY TYPE PROJECTS ONLY AND ELIGIBLE FOR ALL FEDERAL OR STATE FUNDS)	20040630	EXEMPT/TRAFFIC SIGNALIZATION



## Appendix K Sensitive Species Lists



### United States Department of the Interior

#### FISH AND WILDLIFE SERVICE

Ecological Services  
Carlsbad Fish and Wildlife Office  
6010 Hidden Valley Road  
Carlsbad, California 92009



In Reply Refer To:  
FWS-SB-1654.1

SEP 11 2003

Tonya Moore  
California Department of Transportation, District 8  
464 West Fourth Street, 6<sup>th</sup> Floor  
San Bernardino, California 92401-1400

Re: Request for Information on Federally Endangered, Threatened, Proposed and Candidate Species for Big Bear Bridge Replacement Project, San Bernardino County, California

Dear Ms. Moore:

This letter responds to your email request dated August 21, 2003, concerning federally endangered, threatened, proposed, and candidate species that may occur in the vicinity of the Big Bear Bridge Replacement Project, San Bernardino County. To assist you in evaluating the potential occurrence of these species within the area of interest, we are providing the enclosed list.

Section 7 of the Endangered Species Act of 1973 (Act), as amended, requires Federal agencies to consult with us, the U.S. Fish and Wildlife Service, should it be determined that their actions may affect federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursuit, injury, kill) of federally listed wildlife. "Harm" is further defined to include habitat modification or degradation where it kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Take incidental to otherwise lawful activities can be authorized under sections 7 (Federal consultations) and 10 (habitat conservation plans) of the Act.

If a proposed project is authorized, funded, or carried out by a Federal agency and may affect a listed species, then the Federal agency must consult with us on behalf of the applicant, pursuant to section 7 of the Act. In other words, any activity on private land that requires Federal involvement (such as the issuance of a section 404 permit under the Clean Water Act by the U.S. Army Corps of Engineers) and may affect listed species must be reviewed by us to insure that the continued existence of the species would not be jeopardized. During the section 7 process, measures to avoid and minimize project effects to listed species and their habitat will be identified and incorporated into a biological opinion that includes an incidental take statement that authorizes incidental take by the Federal agency and applicant.

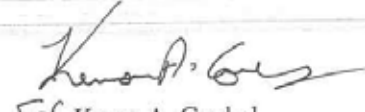


Tonya Moore (FWS-SB-1654.1)

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Should you have any questions regarding the species list provided, or your responsibilities under the Act, please contact Jesse Bennett of my staff at (760) 431-9440 extension 305.

Sincerely,

  
 Karen A. Goebel  
 Assistant Field Supervisor

Enclosure

Tonya Moore (FWS-SB-1654.1)

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**Federally Endangered, Threatened, Proposed and Candidate  
 Species that May Occur at or near the Big Bear Bridge Replacement Project Site, San  
 Bernardino County  
 August 28, 2003**

Common Name	Scientific Name	Status
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BIRDS

southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E
bald eagle	<i>Haliaeetus leucocephalus</i>	T

AMPHIBIANS

mountain yellow-legged frog	<i>Rana muscosa</i>	E
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PLANTS

Bear Valley sandwort	<i>Arenaria ursina</i>	T
ash-grey paintbrush	<i>Castilleja cinerea</i>	T
southern mountain wild-buckwheat	<i>Eriogonum kennedyi</i> var. <i>austromontanum</i>	T
San Bernardino bluegrass	<i>Poa atropurpurea</i>	E
pedate checker-mallow	<i>Sidalcea pedata</i>	E
California taraxacum	<i>Taraxacum californicum</i>	E
slender petaled-mustard	<i>Thelypodium stenopetalum</i>	E

E: Endangered, T: Threatened



**Threatened, Endangered, Species of Special Concern and Sensitive Animal  
Species within the San Bernardino National Forest**

COMMON NAME	LATIN NAME	HABITAT TYPE**
<b>THREATENED AND ENDANGERED SPECIES AND SPECIES PROPOSED FOR LISTING</b>		
Quino checkerspot butterfly	<i>Euphydryas editha quino</i>	c
unarmored threespine stickleback	<i>Gasterosteus aculeatus williamsoni</i>	aq
unarmored threespine stickleback (Shay Creek)	<i>Gasterosteus</i> sp.	aq
Mohave chub	<i>Gila bicolor mohavensis</i>	aq
Santa Ana sucker	<i>Catostomus santannae</i>	aq
California red-legged frog	<i>Rana aurora draytonii</i>	r, aq
mountain yellow-legged frog	<i>Rana muscosa</i>	r
arroyo southwestern toad	<i>Bufo californicus</i>	d
desert tortoise	<i>Gopherus agassizii</i>	aq
California brown pelican	<i>Pelecanus occidentalis californicus</i>	g, m, g, rk
California condor	<i>Gymnogyps californianus</i>	aq, mc
bald eagle	<i>Haliaeetus leucocephalus</i>	r
southwestern willow flycatcher	<i>Empidonax trailii extimus</i>	c
coastal California gnatcatcher	<i>Polioptila californica californica</i>	r
least Bell's vireo	<i>Vireo bellii pusillus</i>	g
mountain plover	<i>Charadrius montanus</i>	w
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	wo, rk, d
Peninsular bighorn sheep	<i>Ovis canadensis cremnobates</i>	c
<b>REGION 5 SENSITIVE SPECIES</b>		
Santa Ana speckled dace	<i>Rhinichthys osculus</i> ssp.	aq
arroyo chub	<i>Gila orcutti</i>	aq
partially armored threespine stickleback	<i>Gasterosteus aculeatus microcephalus</i>	aq
foothill yellow-legged frog	<i>Rana boylei</i>	r
large-blotched ensatina	<i>Ensatina eschscholtzii klauberi</i>	r, mc
yellow-blotched ensatina	<i>Ensatina eschscholtzii croceator</i>	r, mc
San Gabriel Mountain slender salamander	<i>Batrachoseps gabrieli</i>	
southwestern pond turtle	<i>Clemmys marmorata pallida</i>	aq, r
California legless lizard	<i>Aniella pulchra</i>	c, d
San Diego horned lizard	<i>Phrynosoma coronatum blainvillii</i>	w, d, wo
southern rubber boa	<i>Charina bottae umbratica</i>	mc, c, r
coastal rosy boa	<i>Lichanura trivirgata rosafusca</i>	c
San Bernardino ringneck snake	<i>Diadophis punctatus modestus</i>	c, g, rk, r
San Diego ringneck snake	<i>Diadophis punctatus similis</i>	c, g, rk
San Bernardino mountain kingsnake	<i>Lampropeltis zonata parvirubra</i>	mc, c, pj, r
San Diego mountain kingsnake	<i>Lampropeltis zonata pulchra</i>	mc, r
Hammond two-striped garter snake	<i>Thamnophis hammondii hammondii</i>	r, aq
northern goshawk	<i>Accipiter gentilis</i>	mc
California spotted owl	<i>Strix occidentalis occidentalis</i>	mc
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	r
San Diego cactus wren	<i>Campylorhynchus bruneicapillus sandiegoense</i>	d, c
Willow flycatcher	<i>Empidonax traillii</i>	r
California leaf-nosed bat	<i>Macrotus californicus</i>	d, wo (pj)
Townsend's western big-eared bat	<i>Corynorhinus townsendii townsendii</i>	mc, r, aq, wo, c, mines
pallid bat	<i>Antrozous pallidus</i>	c, wo, mc, d, rk
western red bat	<i>Lasiurus blossevillei</i>	mc, r
Los Angeles little pocket mouse	<i>Perognathus longimembris brevinasus</i>	c
white-eared pocket mouse	<i>Perognathus alticola alticola</i>	mc, wo
San Bernardino flying squirrel	<i>Glaucomys sabrinus californicus</i>	mc, r
San Gabriel Mountains bighorn sheep	<i>Ovis canadensis nelsoni</i>	
<b>SBNF SENSITIVE ANIMAL SPECIES (as designated in the 1989 Forest Plan)</b>		
Cooper's hawk	<i>Accipiter cooperii</i>	r, mc

Appendix K Sensitive Species Lists

COMMON NAME	LATIN NAME	HABITAT TYPE**
sharp-shinned hawk	<i>Accipiter striatus</i>	r, mc
zone-tailed hawk	<i>Buteo albonotatus</i>	mc, wo (pj)
American peregrine falcon	<i>Falco peregrinus anatum</i>	g, m, aq
prairie falcon	<i>Falco mexicanus</i>	g, d
turkey vulture	<i>Cathartes aura</i>	a, g, c, wo, d, rk
osprey	<i>Pandion haliaetus</i>	aq, r
golden eagle	<i>Aquila chrysaetos</i>	g, d, wo (pj+oak)
long-eared owl	<i>Asio otus</i>	r, mc
white-tailed kite	<i>Elanus leucurus</i>	r, wo
black swift	<i>Cypseloides niger</i>	a, r (waterfalls)
Lewis' woodpecker	<i>Melanerpes lewis</i>	wo (oak), r
gray vireo	<i>Vireo vicinior</i>	wo (pj)
black-tailed gnatcatcher	<i>Poliophtila melanura</i>	d, c
purple martin	<i>Progne subis</i>	a, r, mc, wo
tree swallow	<i>Tachycineta bicolor</i>	a, r, wo, mc
Swainson's thrush	<i>Catharus ustulatus</i>	r, mc
LeConte's thrasher	<i>Toxostoma lecontei</i>	d
Wilson's warbler	<i>Wilsonia pusilla</i>	r
yellow warbler	<i>Dendroica petechia brewsteri</i>	mc, wo, r
yellow-breasted chat	<i>Icteria virens</i>	r
hepatic tanager	<i>Piranga flava</i>	wo
American badger	<i>Taxidea taxus</i>	wo, mc, c
mountain lion	<i>Puma concolor</i>	mc, wo, c, d
<b>SBNF SENSITIVE ANIMAL SPECIES</b>		
simple hydroporus diving beetle	<i>Hydroporus simplex</i>	aq
Andrew's marble butterfly	<i>Euchloe hyantis andrewsi</i>	m, r
(Coxey Meadow) blue butterfly	<i>Euphilotes baueri (battoides) vernalis</i>	Pebble plain
Dark Aurora blue butterfly	<i>Euphilotes enoptes cryptorufes</i>	
(Baldwin Lake) blue butterfly	Baldwin Lake <i>Euphilotes enoptes</i> near <i>dammersi</i> ssp.	Pebble plain
(Arrastre Creek) blue butterfly	Arrastre Creek <i>Euphilotes enoptes</i> near <i>dammersi</i> ssp.	Pebble plain
San Gabriel Mountains blue butterfly	<i>Plejebus saepiolus aureolus</i>	m
San Gabriel Mountains elfin	<i>Incisalia mossii</i> ssp. (undescribed)	rk
western spadefoot toad	<i>Spea hamondii</i>	w, r,
coast range newt	<i>Taricha torosa torosa</i>	wo (oak), c, g, mc, r
granite night lizard	<i>Xantusia henshawi</i>	rk,
Beldings orange-throated whiptail	<i>Cnemidophorus hyperthrus beldingi</i>	w, rk, c, wo (oaks)
coastal western whiptail	<i>Cnemidophorus tigris multiscutatus</i>	w
Coronado skink	<i>Eumeces skiltonianus interparietalis</i>	c, wo, r, mc
barefoot banded gecko	<i>Coleonyx swaitaki</i>	rk
San Diego banded gecko	<i>Coleonyx variegatus abbotti</i>	d, c, wo (pj), rk
southern sagebrush lizard	<i>Sceloporus graciosus vandenburgiansus</i>	d, wo, c
common chuckwalla	<i>Sauromalus obesus</i>	d, wo (pj)
northern red diamond rattlesnake	<i>Crotalus ruber ruber</i>	c, wo, d, rk
coast patch-nosed snake	<i>Salvadora hexalepis virgultea</i>	c, d, w, rk
American white pelican	<i>Pelecanus erythrorhynchos</i>	aq
double-crested cormorant	<i>Phalacrocorax auritus</i>	aq
common snipe	<i>Gallinago gallinago</i>	m, aq
white-faced ibis	<i>Plegadis chihi</i>	aq
American bittern	<i>Botaurus lentiginosus</i>	aq
western least bittern	<i>Ixobrychus exilis hesperis</i>	aq
northern harrier	<i>Circus cyaneus</i>	g, m
ferruginous hawk	<i>Buteo regalis</i>	g, d
merlin	<i>Falco columbarius</i>	g, mc

COMMON NAME	LATIN NAME	HABITAT TYPE**
flamulated owl	<i>Otus flammeolus</i>	mc
northern pygmy owl	<i>Glaucidium gnoma</i>	r, mc, wo
burrowing owl	<i>Athene cunicularia hypogaeae</i>	d
whip-poor-will	<i>Caprimulgus vociferus</i>	wo, mc
band-tailed pigeon	<i>Columba fasciata</i>	mc, wo
mountain quail	<i>Oreortyx pictus</i>	mc, wo, r
calliope hummingbird	<i>Stellula calliope</i>	r
Allen's hummingbird	<i>Selasphorus sasin</i>	r, c, wo, mc
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	mc
Nuttall's woodpecker	<i>Picoides nuttallii</i>	r, c, wo, mc
white-headed woodpecker	<i>Picoides albolarvatus</i>	mc
olive-sided flycatcher	<i>Contopus borealis</i>	r, wo, mc
loggerhead shrike	<i>Lanius ludovicianus</i>	c, wo, r, d, mc
California horned lark	<i>Eremophila alpestris actia</i>	g, d
oak titmouse	<i>Parus inornatus</i>	c, mc, r, wo
Bendire's thrasher	<i>Toxostoma bendirei</i>	c, wo, r, d
California thrasher	<i>Toxostoma redivivum</i>	c, wo, r
Nashville warbler	<i>Vermivora ruficapilla</i>	mc, wo, r
MacGillivray's warbler	<i>Oporornis tolmiei</i>	r
summer tanager	<i>Piranga rubra</i>	r
southern California rufous-crowned sparrow	<i>Aimophila ruficeps canescens</i>	c
Bell's sage sparrow	<i>Amphispiza belli belli</i>	c
Lincoln's sparrow	<i>Melospiza lincolni</i>	r, mc, wo
black-chinned sparrow	<i>Spizella atrogularis</i>	d, c, wo (pj)
tri-colored blackbird	<i>Agelaius tricolor</i>	r, m
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	r, c
spotted bat	<i>Euderma maculatum</i>	d, rk
greater western mastiff bat	<i>Eumops perotis californicus</i>	mc, wo, c, g, d, u
occult little brown bat	<i>Myotis lucifugus</i>	c, m, g, wo
pocketed free-tailed bat	<i>Nyctinomops femerosaccus</i>	wo (pj), d
Yuma myotis	<i>Myotis yumanensis</i>	d, wo
long-eared myotis	<i>Myotis evotis</i>	c, wo, mc
fringed myotis	<i>Myotis thysanodes</i>	r, wo, m, g, mc
long-legged myotis	<i>Myotis volans</i>	wo, mc, c
small-footed myotis	<i>Myotis ciliolabrum</i>	wo, r, mc
San Diego desert woodrat	<i>Neotoma lepida intermedia</i>	d, c, rk
southern grasshopper mouse	<i>Onychomys torridus ramona</i>	d, c
northwestern San Diego pocket mouse	<i>Chaetodipus fallax fallax</i>	d, c
Mohave ground squirrel	<i>Spermophilus mohavensis</i>	d
San Diego black-tailed jackrabbit	<i>Lepus californicus bennettii</i>	c, wo
ringtail	<i>Bassariscus astutus</i>	mc, wo, rk, r
Nelson's bighorn sheep	<i>Ovis canadensis nelsoni</i>	d, rk, wo (pj)

**\*\*HABITAT TYPES/HABITAT COMPONENTS (cont. next page)**

a = aerial; usually seen in flight, often over several habitat types

r = riparian (streamside thickets and woodlands)

g = grasslands, fields, and agricultural areas

m = marshes, meadows; both freshwater areas and moist meadows

c = chaparral and coastal sage scrub

wo = woodlands; pinyon-juniper, oaks

mc = mixed conifer forests; jeffrey pine, ponderosa pine, bigcone douglas fir, coulter pine, sugar pine, white fir overstory

d = desert; Joshua tree woodlands, creosote bush scrub, blackbrush scrub

aq = aquatic; lakes, reservoirs, ponds, vernal pools/puddles

u = urbanized areas

w = washes and alluvial fans  
rk = cliffs and rocky outcrops  
s = snags and cavities

Threatened, Endangered, Proposed, Sensitive and Sensitive Plant Species  
within the San Bernardino National Forest

SPECIES NAME	COMMON NAME
<b>ENDANGERED, THREATENED, AND SPECIES PROPOSED FOR LISTING</b>	
<i>Arenaria paludicola</i>	Marsh sandwort
<i>Arenaria ursina</i>	Bear Valley sandwort
<i>Astragalus albens</i>	Cushenbury milk vetch
<i>Astragalus brauntonii</i>	Braunton's milk-vetch
<i>Astragalus lentiginosus</i> var. <i>cochellae</i>	Coachella Valley milk vetch
<i>Astragalus tricarlinatus</i>	Triple-ribbed milk-vetch
<i>Berberis nevadensis</i> (syn. <i>Mahonia nevadensis</i> )	Nevadensis barberry
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea
<i>Castilleja cinerea</i>	Ash-gray Indian paintbrush
<i>Doceahema leptoceras</i> (synonyms: <i>Chorizanthe</i> L., <i>Centrostegia</i> L.)	Slender-horned spineflower
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar
<i>Erigeron parishii</i>	Parish's daisy
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i>	Southern mountain buckwheat
<i>Eriogonum ovalifolium</i> var. <i>vineum</i>	Cushenbury buckwheat
<i>Lesquerella kingii</i> var. <i>bernardina</i>	San Bernardino Mtns. bladderpod
<i>Oxytheca parishii</i> var. <i>goodmaniana</i>	Cushenbury oxytheca
<i>Poa atropurpurea</i>	San Bernardino bluegrass
<i>Rorippa gambelii</i>	Gambel's water cress
<i>Sidalcea pedata</i>	Bird's foot checkerbloom
<i>Taraxacum californicum</i>	California dandelion
<i>Thelypodium stenopetalum</i>	Slender-petaled thelypodium
<b>SENSITIVE PLANT SPECIES</b>	
<i>Abronia nana</i> ssp. <i>covillei</i>	Coville's dwarf abronia
<i>Arabis breweri</i> var. <i>pecuniaria</i>	San Bernardino rock-cress
<i>Arabis johnstonii</i>	Johnston's rock cress
<i>Arabis parishii</i>	Parish's rock cress
<i>Arabis shockleyi</i>	Shockley's rock-cress
<i>Arctostaphylos peninsularis</i> ssp. <i>peninsularis</i>	peninsular manzanita
<i>Astragalus bicristatus</i>	crested milk-vetch
<i>Astragalus lentiginosus</i> var. <i>antoniui</i>	San Antonio milk-vetch
<i>Astragalus lentiginosus</i> var. <i>sierrae</i>	Big Bear Valley milk-vetch
<i>Astragalus pachypus</i> var. <i>jaegeri</i>	Jaeger's milkvetch
<i>Atriplex parishii</i>	Parish's brittle scale
<i>Botrychium crenulatum</i>	scalloped moonwort
<i>Calochortus palmeri</i> var. <i>munzii</i>	Munz's mariposa lily
<i>Calochortus palmeri</i> var. <i>palmeri</i>	Palmer's mariposa lily
<i>Calochortus plummerae</i>	Plummer's mariposa lily
<i>Calochortus striatus</i>	alkali mariposa lily
<i>Canbya candida</i>	pygmy poppy
<i>Castilleja lasiorhyncha</i> (syn. <i>Orthocarpus</i> L.)	San Bernardino Mountains owl's clover
<i>Caulanthus simulans</i>	Payson's jewelflower
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	long-spined spineflower
<i>Claytonia lanceolata</i> var. <i>peirsonii</i>	Peirson's spring beauty
<i>Delphinium hesperium</i> ssp. <i>cuyamaca</i>	Cuyamaca larkspur
<i>Dudleya abramsii</i> ssp. <i>affinis</i>	San Bernardino Mts. dudleya
<i>Erigeron uncialis</i> var. <i>uncialis</i>	Limestone daisy

SPECIES NAME	COMMON NAME
<i>Eriogonum kennedyi</i> var. <i>alpigenum</i>	southern alpine buckwheat
<i>Eriogonum microthecum</i> var. <i>johnstonii</i>	Johnston's buckwheat
<i>Galium angustifolium</i> ssp. <i>jacinticum</i>	San Jacinto Mts bedstraw
<i>Galium californicum</i> ssp. <i>primum</i>	California bedstraw
<i>Hemizonia mohavensis</i> (= <i>Deinandra mohavensis</i> )	Mojave tarplant
<i>Heuchera hirsutissima</i>	shaggy-haired alum root
<i>Heuchera parishii</i>	Parish's alumroot
<i>Horkelia wilderae</i>	Barton Flats horkelia
<i>Ivesia argyrocoma</i>	silver-haired ivesia
<i>Ivesia callida</i>	Tahquitz ivesia
<i>Leptodactylon jaegeri</i>	San Jacinto prickly phlox
<i>Lilium parryi</i>	lemon lily
<i>Linanthus concinnus</i>	San Gabriel linanthus
<i>Linanthus floribundus</i> ssp. <i>hallii</i>	Santa Rosa Mts. linanthus
<i>Linanthus killipii</i>	Baldwin Lake linanthus
<i>Machaeranthera canescens</i> var. <i>ziegleri</i>	Ziegler's aster
<i>Malaxis monophyllos</i> ssp. <i>brachypoda</i>	Adder's mouth
<i>Marina orcuttii</i> var. <i>orcuttii</i>	California marina
<i>Mimulus exiguus</i>	San Bernardino Mountains monkeyflower
<i>Mimulus purpureus</i>	purple monkeyflower
<i>Monardella macrantha</i> ssp. <i>hallii</i>	Hall's monardella
<i>Monardella nana</i> ssp. <i>leptosiphon</i>	San Felipe monardella
<i>Monardella viridis</i> ssp. <i>saxicola</i>	rock monardella
<i>Navarretia peninsularis</i>	Baja navarretia
<i>Opuntia basilaris</i> var. <i>brachyclada</i>	short-joint beavertail
<i>Oxytheca emarginata</i>	white-margined oxytheca
<i>Oxytheca parishii</i> var. <i>cienezensis</i>	Cienega Seca oxytheca
<i>Penstemon californicus</i>	California beardtongue
<i>Phlox dolichantha</i>	Bear Valley phlox
<i>Potentilla rimicola</i>	cliff cinquefoil
<i>Pyrrocoma uniflora</i> ssp. <i>gossypina</i> (syn. <i>Haplopappus u. ssp.g.</i> )	Bear Valley pyrrocoma
<i>Scutellaria bolanderi</i> ssp. <i>austromontanum</i>	southern skullcap
<i>Sedum niveum</i>	Davidson's stonecrop
<i>Senecio bernardinus</i> (= <i>Packera bernardina</i> )	San Bernardino butterweed
<i>Sidalcea hickmanii</i> ssp. <i>parishii</i> ***	Parish's checkerbloom
<i>Streptanthus campestris</i>	southern jewelflower
<i>Swertia neglecta</i> (syn. <i>Frasera neglecta</i> )	Pine green-gentian
<i>Viola pinetorum</i> ssp. <i>grisea</i>	gray-leaved violet
<b>WATCH-LIST SPECIES</b>	
<i>Allium parishii</i>	Parish's onion
<i>Androsace elongata</i> ssp. <i>acuta</i>	California androsace
<i>Antennaria marginata</i>	white-margined everlasting
<i>Arabis dispar</i>	pinyon rock-cress
<i>Astragalus leucolobus</i>	Bear Valley woollypod
<i>Boykenia rotundifolia</i>	round-leaved boykenia
<i>Castilleja montigena</i> (syn. <i>C. applegatei</i> ssp. <i>martinii</i> <i>C. angustifolia</i> , <i>C. martinii</i> var. <i>ewanii</i> )	Heckard's paintbrush
<i>Castilleja plagiotoma</i>	Mojave paintbrush
<i>Chaenactis parishii</i>	Parish's chaenactis
<i>Chorizanthe xanti</i> var. <i>leucotheca</i>	White-bracted spineflower
<i>Corydallanthus eremicus</i> ssp. <i>eremicus</i>	Desert bird's beak
<i>Erigeron breweri</i> var. <i>jacintus</i>	San Jacinto Mts. Daisy
<i>Eriogonum foliosum</i>	leafy buckwheat
<i>Eriogonum microthecum</i> var. <i>corymbosoides</i>	San Bernardino Mountain buckwheat
<i>Eriogonum umbellatum</i> var. <i>minus</i>	alpine sulphur-flowered buckwheat
<i>Eriophyllum lanatum</i> var. <i>obovatum</i>	southern Sierra woolly sunflower

Appendix K Sensitive Species Lists

SPECIES NAME	COMMON NAME
<i>Galium angustifolium</i> ssp. <i>gabrielense</i>	San Antonio Canyon bedstraw
<i>Galium jepsonii</i> (syn. <i>G. angustifolium</i> var. <i>subglabrum</i> )	Jepson's bedstraw
<i>Galium johnstonii</i> (syn. <i>G. angustifolium</i> var. <i>pinetorum</i> )	Johnston's bedstraw
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower
<i>Heuchera abramsii</i>	Abram's alumroot
<i>Heuchera elegans</i>	urn-flowered alumroot
<i>Hulsea vestita</i> ssp. <i>callicarpa</i>	beautiful hulsea
<i>Hulsea vestita</i> ssp. <i>gabrielensis</i>	San Gabriel Mtns' sunflower
<i>Hulsea vestita</i> ssp. <i>parryi</i>	Parry's sunflower
<i>Juncus duranii</i>	Duran's rush
<i>Layia ziegleri</i>	Ziegler's tidy tips
<i>Lepichinia fragrans</i>	fragrant pitcher sage
<i>Lilium humboldtii</i> var. <i>ocellatum</i>	ocellated Humboldt lily
<i>Linanthus maculatus</i> (Formerly <i>Gilia maculata</i> )	Little San Bernardino Mountains gilia
<i>Monardella cinerea</i>	gray monardella
<i>Muhlenbergia californica</i>	California muhly grass
<i>Muilla coronata</i>	crowned muilla
<i>Oreonana vestita</i>	woolly mountain-parsley
<i>Oxytheca caryophylloides</i>	chickweed oxytheca
<i>Phacelia exilis</i> (syn. <i>P. mohavensis</i> var. <i>exilis</i> )	Transverse Range phacelia
<i>Phacelia mohavensis</i>	Mojave phacelia
<i>Piperia leptopetala</i>	narrow-petaled rein orchid
<i>Podistera nevadensis</i>	Sierra podistera
<i>Rupertia rigida</i> (syn. <i>Psoralea rigida</i> )	Parish's rupertia
<i>Senecio ionophyllus</i>	Tehachapi ragwort
<i>Streptanthus bernardinus</i>	Laguna Mountains jewel flower
<i>Syntrichopappus lemmonii</i>	Lemmon's syntrichopappus
<i>Thelypteris puberula</i> var. <i>sonorensis</i>	Sonoran maiden fern
<i>Viola aurea</i>	golden violet
<b>Plants proposed for SBNF Sensitive Species (as of 6/18/02)</b>	
<i>Abronia villosa</i> var. <i>aurita</i>	chaparral sand verbena
<i>Allium marvinii</i>	Yucaipa onion
<i>Arenaria lanuginosa</i> ssp. <i>saxosa</i>	rock sandwort
<i>Draba corrugata</i> var. <i>saxosa</i>	rock draba
<i>Eriogonum foliosum</i>	leafy buckwheat
<i>Gentiana fremontii</i>	moss gentian
<i>Gilia leptantha</i> ssp. <i>leptantha</i>	San Bernardino gilia
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower
<i>Horkelia cuneata</i> ssp. <i>puberula</i>	mesa horkelia
<i>Hulsea vestita</i> ssp. <i>pygmaea</i>	pygmy hulsea
<i>Linanthus orcuttii</i>	Orcutt's linanthus
<i>Matelea parvifolia</i>	spearleaf
<i>Oreonana vestita</i>	woolly mountain parsley
<i>Parnassia cirrata</i>	Fringed grass-of-parnassus

\*\*\*USFWS Candidate Species for federal listing.





# Appendix L ACOE Delineation concurrence and NEPA/404 Withdrawal Letters

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DEPARTMENT OF THE ARMY  
LOS ANGELES DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 532711  
LOS ANGELES, CALIFORNIA 90053-2325

December 8, 2005

REPLY TO  
ATTENTION OF:  
Office of the Chief  
Regulatory Branch

Russell Williams  
California Department of Transportation, District 8  
Environmental Planning, MS-823  
464 West Fourth Street, 6th Floor  
San Bernardino, California 92401-1400

Dear Mr. Williams:

Reference is made to your letter (No. 200600299-SJH) dated November 16, 2005 for a Department of the Army concurrence with the California Department of Transportation's (Caltrans EA: 227000) Big Bear Bridge Replacement Jurisdictional Wetland Delineation dated November 7, 2005. The Wetland Delineation encompasses areas along the banks of Big Bear Lake and Bear Creek, in Big Bear City, San Bernardino County, California.

Based on the information furnished in your Wetland Delineation, the Corps concurs that the proposed project study area contains approximately 11.05 acres of waters of the U.S. Three project alternatives are currently being considered, a "No Project" and two "Build" alternatives (4 & 5). Alternative 4 contains 3.01 acres of non-wetland waters of the U.S. with impacts to 0.01-acre. Alternative 5 contains 0.19-acre of non-wetland waters of the U.S. Direct impacts are not anticipated since the proposed project will span all jurisdictional areas. However, if temporary discharge of fill is required to access, construct, or dewater waters of the U.S., a permit (Nationwide Permit # 33) will be required. If there is no permanent or temporary discharge of fill into waters of the U.S., the activity will not be regulated or subject to our jurisdiction under Section 404 of the Clean Water Act. Under that circumstance, a Section 404 permit will not be required from our office.

Furthermore, you are hereby advised that the Corps of Engineers has established an Administrative Appeal Process for jurisdictional determinations which is fully described at 33 CFR Part 331. The Administrative Appeal Process for jurisdictional determinations is diagrammed on the enclosed Appendix C. If you decide not to accept this approved jurisdictional determination and wish to provide new information, please send the information to this office. If you do not supply additional information you may appeal this approved jurisdictional determination by completing the attached "Notification of Administrative Appeal Options and Process and Request for Appeal" form and submitting it directly to the Appeal Review Officer at the address provided on the form.

If you have any questions, please contact Stephanie J. Hall of my staff at (213) 452-3410.

Sincerely,

Mark Durham



DEPARTMENT OF THE ARMY  
LOS ANGELES DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 532711  
LOS ANGELES, CALIFORNIA 90053-2325

April 22, 2003

REPLY TO:  
ATTENTION OF  
Office of the Chief  
Regulatory Branch

Mr. Nathaniel Pickett  
Office Chief, Environmental Biological Studies/Permits  
California Department of Transportation, District 8  
464 West Fourth Street, 6<sup>th</sup> Floor  
San Bernardino, California 92401-1400

Dear Mr. Pickett:

This letter serves as acknowledgement that the Federal Highway Administration (FHWA) and the California Department of Transportation (Caltrans), District 8, have withdrawn the Big Bear Bridge Replacement Project (EA #227000) from the National Environmental Policy Act/Section 404 of the Clean Water Act (CWA) Integration Process for Surface Transportation Projects in California. The project has been withdrawn based upon the reduction of impacts to waters of the U.S. (< 0.007-acre) and the application of the interim thresholds for invoking the NEPA/404 Integration Process Memorandum of Understanding (MOU). The latter is interim guidance issued by the FHWA in October and November 2000, which stipulates that federally aided transportation projects resulting in impacts of 5 acres or more to waters of the U.S., including wetlands, must undergo the integration process. Since the Big Bear Bridge Replacement Project Alternative 4 (0.007-acre) and Alternative 5 (0 acres) do not meet or exceed this acreage threshold, the need for the integration process is obviated.

Accordingly, we agree that the subject project is not a candidate for the NEPA/404 Integration Process MOU. If you have any questions, please contact Ms. Susan A. DeSaddi of my staff at (213) 452-3412 or [susan.a.desaddi@usace.army.mil](mailto:susan.a.desaddi@usace.army.mil).

Sincerely,

Mark Durham  
Chief, South Coast Section  
Regulatory Branch

-2-

Copies Furnished:  
Mary Ann Rondinella, U.S. Federal Highway Administration  
Elizabeth Varnhagen, U.S. Environmental Protection Agency  
Nancy Ferguson, U.S. Fish and Wildlife Service  
Susanne Glasgow, Caltrans



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

April 14, 2003

Nathaniel Pickett, Chief  
Environmental Biological Studies/Permits  
Caltrans, District 8  
Environmental Planning (MS 822)  
464 West Fourth Street, 6th Floor  
San Bernardino, CA 92401

Dear Mr. Pickett:

This responds to your letter dated February 11, 2003 concerning the Big Bear Bridge Replacement Project (EA 227000) in San Bernardino County, California. The request is pursuant to the National Environmental Policy Act/Clean Water Act Section 404 Integration Memorandum of Understanding (NEPA/404 MOU). Your letter requests written concurrence from the Environmental Protection Agency (EPA) that the Big Bear Bridge Replacement Project can be withdrawn from the NEPA/404 integration process.

According to the information that was provided, the area of permanent impacts to waters of the U.S. will be below the interim threshold the NEPA/404 integration process. No assessment of the extent or magnitude of temporary impacts to waters from project construction was provided. However, staff at the Corps of Engineers has preliminarily determined that the proposed project would likely qualify for Section 404 authorization under a Nationwide permit, which reflects that it should have minimal adverse impacts on the aquatic environment.

Based on the above information, EPA concurs with Caltrans' request to withdraw from the NEPA/404 integration process. We remain available to offer assistance if you have questions relating to NEPA or Section 404 compliance. Please send this office a copy of the draft environmental assessment or environmental impact statement for our review under Section 309 of the Clean Air Act, once it is released for public comment. The contact person for this project is Liz Varnhagen who can be reached at (415) 972-3845 or [varnhagen.liz@epa.gov](mailto:varnhagen.liz@epa.gov).

Sincerely,

A handwritten signature in black ink, reading "Lisa B. Hanf", is written over the typed name.

Lisa B. Hanf, Manager  
Federal Activities Office

cc: Mark Durham, Corps of Engineers, Los Angeles District  
Mary Ann Rondinella, Federal Highway Administration, Sacramento

*Printed on Recycled Paper*



# Appendix M Native American Coordination Letters

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STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

## DEPARTMENT OF TRANSPORTATION

DISTRICT 8

ENVIRONMENTAL PLANNING, (MS 825)

464 WEST 4<sup>TH</sup> STREET, 6<sup>TH</sup> FLOOR

SAN BERNARDINO, CA 92401-1400

PHONE (909) 383-5950

FAX (909) 383-6494

TTY (909) 383-6300



*Flex your power!  
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September 9, 2004

Mr. Rob Wood  
Environmental Specialist III  
Native American Heritage Commission  
915 Capitol Mall, Room 364  
Sacramento, CA 95814

08-SBd-18-PM 44.2/44.7  
Replace Big Bear Lake Bridge  
EA 22700

Dear Mr. Wood:

Sacred Lands File Search Request for 08-SBd-18-PM 44.2/44.7, San Bernardino County, California

The California Department of Transportation (Department) is currently conducting environmental studies for a proposed project to replace the Big Bear Lake Bridge on State Route 18, from Post Mile 44.2/44.7. The project is located in San Bernardino County, on the following U.S. Geological Survey quadrangle: Big Bear Lake—T2N, R1W

The studies include cultural resources investigations and consultation with interested parties. The Department is interested in receiving input from the local Native American community regarding any concerns related to the proposed project. We request that a search of the Sacred Lands files be conducted in order to determine if any sensitive cultural resources are known within or near the project area. In addition, we request a list of Native American individuals and/or groups who have expressed concern or interest in the vicinity.

If you have any questions or comments regarding the proposed project, please feel free to contact me at (909) 383-4042. We look forward to your response.

Sincerely,

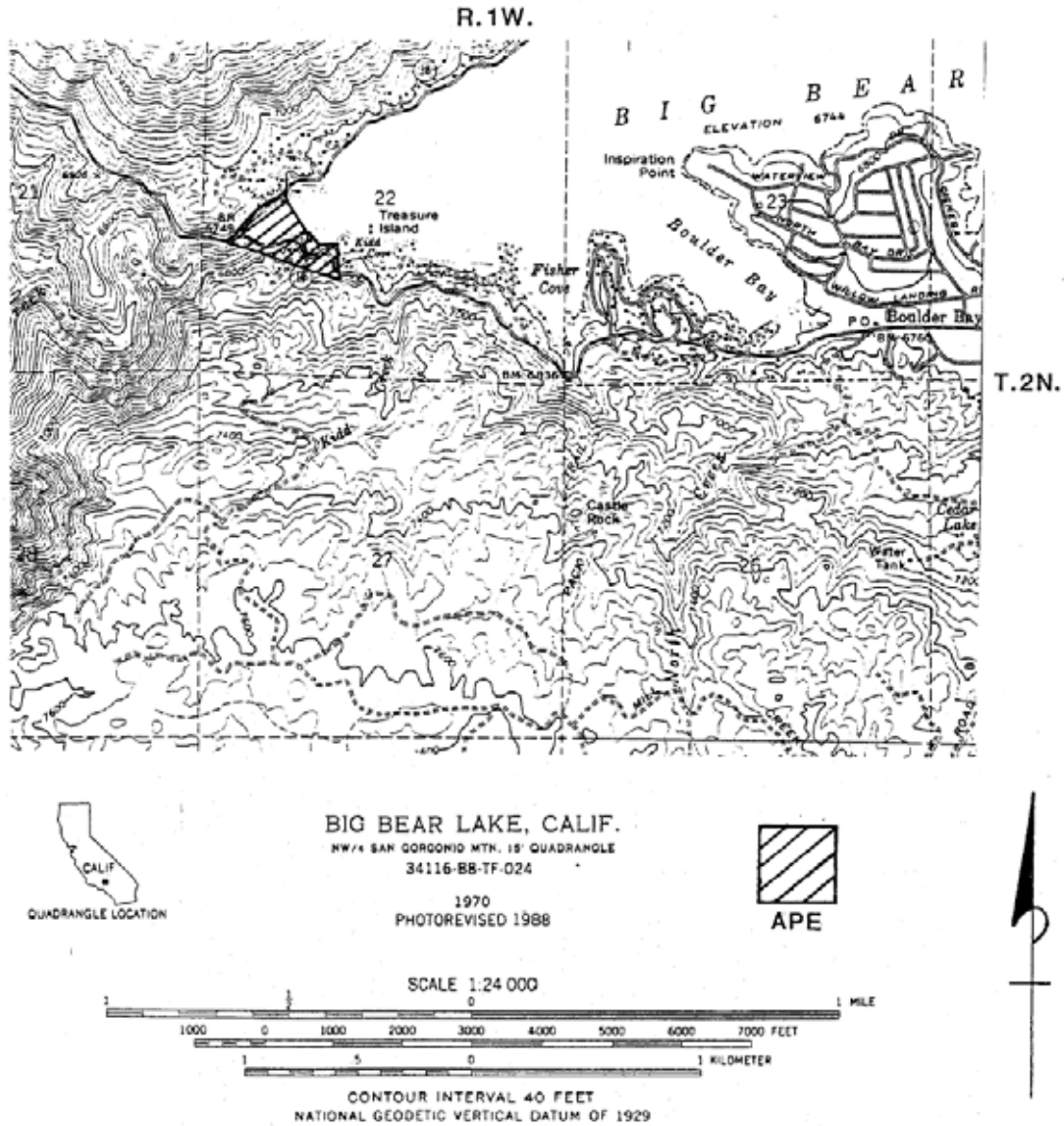
KAREN K. SWOPE, Ph.D.  
Associate Environmental Planner, Archaeologist  
District Native American Coordinator  
Environmental Support/Cultural Studies

Enclosures

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**MAP A – Project Vicinity**





STATE OF CALIFORNIA

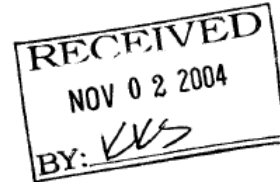
Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364  
SACRAMENTO, CA 95814  
(916) 653-4082  
Fax (916) 657-5390  
Web Site [www.nahc.ca.gov](http://www.nahc.ca.gov)



November 2, 2004



Ms. Karen K. Swope, Ph.D  
Caltrans District 8  
Environmental Planning Division, MS 825  
464 West 4th St., 6th Floor  
San Bernardino, CA 92401-1400

FAX: 909-383-6494

RE: Sacred Lands File search for the proposed Big Bear Lake Replacement Project, 08-SBd-18-PM 44.2/44.7

Dear Ms. Swope:

A record search of the Sacred Lands File has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have unique knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. The Commission makes no recommendation of a single individual or group over another. Please contact all those listed; if they cannot supply with you with specific information, they may be able to recommend others with specific knowledge. By contacting all those listed, your organization will be better able to defend itself against claims of failure to consult with the appropriate tribe or group. If you do not receive a response within two weeks, we recommend that you follow-up with a telephone call to ensure that your letter was received.

If you receive notification of a change of address or phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-6251.

Sincerely,

Carol Gaubatz  
Program Analyst

Enc.

P.S. Karen- In the future, feel free to address your San Bernardino County project inquiries to me directly, since I have taken over San Bernardino, Mono, Inyo, Riverside, San Diego and Imperial counties from Rob Wood, and he has consolidated his area of responsibility farther north. Thanks.

**Native American Contacts**  
**San Bernardino County**  
**November 2, 2004**

**Morongo Band of Mission Indians**  
**Britt W. Wilson, Cultural Resource Coordinator**  
**245 N. Murray Street, Suite C    Cahuilla**  
**Banning                   , CA 92220    Serrano**  
britt\_wilson@morongo.org  
(951) 849-8807  
(951) 755-5200  
(951) 922-8146 Fax

**San Fernando Band of Mission Indians**  
**John Valenzuela, Chairperson**  
**P.O. Box 221838                    Fernandeno**  
**Newhall                   , CA 91322    Tataviam**  
tsen2u2@msn.com                    Serrano  
(661) 753-9833 Office                Vanyume  
(760) 885-0955 Cell                   Kitanemuk  
(760) 949-2103 Home

**San Manuel Band of Mission Indians**  
**Deron Marquez, Chairperson**  
**PO Box 266                                Serrano**  
**Patton                   , CA 92369**  
dmarquez@sanmanuel-nsn.  
(909) 864-8933 EXT-3070  
(909) 864-3370 Fax

**San Manuel Band of Mission Indians**  
**Bernadette Brierty, Cultural Resources Coordinator**  
**PO Box 266                                Serrano**  
**Patton                   , CA 92369**  
bbrierty@sanmanuel-nsn.gov  
(909) 864-8933 EXT-2203  
(909) 864-3370 Fax

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF TRANSPORTATION**

**DISTRICT 8**

**ENVIRONMENTAL PLANNING, (MS 825)**

464 WEST 4<sup>TH</sup> STREET, 6<sup>TH</sup> FLOOR

SAN BERNARDINO, CA 92401-1400

PHONE (909) 383-4042

FAX (909) 383-6494

TTY (909) 383-6300



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November 4, 2004

Mr. Britt W. Wilson  
Cultural Resources Coordinator  
Morongo Band of Mission Indians  
245 North Murray Street, Suite C  
Banning, CA 92220

08-SBd-18-PM 44.2/44.7  
(KP 71.1/71.9)  
Big Bear Lake Dam Bridge  
Replacement Project  
EA 22700

Dear Mr. Wilson:

The California Department of Transportation (Department) is currently conducting environmental studies for a proposed project to replace the bridge over the Big Bear Lake Dam at the west end of the lake, approximately one mile west of the city limits of Big Bear Lake. Specifically, the project is located in San Bernardino County on the Big Bear Lake 7.5' U.S. Geological Survey quadrangle, T2N, R1W (SBBM) Section 22.

The project plans are to replace the bridge over Big Bear Dam and to correct small radius curves along the south shore of Big Bear Lake. This will facilitate completion of the dam spillway improvements, move traffic off the existing bridge, and improve approach roadway geometrics. Two project alternatives (see maps 1 and 2) are under consideration. The first (Alternative 4) consists of a new bridge across the lake approximately 200 meters northeast of dam. Curves in the approach along the southern shore will be straightened and improvements will be made along Highway 38. The second plan (Alternative 5) consists of a new bridge constructed across the canyon below the dam and realignment of the first curve east of the dam. Alternatives 1, 2, and 3 have been removed from consideration.

The studies include cultural resources investigations and consultation with interested parties. The Department is interested in receiving input from your community regarding any concerns related to the proposed project. Please inform us of any areas of cultural significance that we should take into account for the purpose of this project. This letter will be followed shortly with a telephone call to discuss any issues and/or comments that you may have. The Department requests to receive your comments by Monday, December 6, 2004.

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Mr. Britt W. Wilson  
November 4, 2004  
Page 2

If you have any questions or comments regarding the proposed project, please feel free to contact me at (909) 383-4042 or by email at [karen\\_k\\_swope@dot.ca.gov](mailto:karen_k_swope@dot.ca.gov). We look forward to your response.

Sincerely,



KAREN K. SWOPE, Ph.D.  
Associate Environmental Planner, Archaeologist  
District Native American Coordinator  
Environmental Support/Cultural Studies

Enclosures



**"Britt Wilson"**  
**<britt\_wilson@morongo.org>**

11/09/2004 02:57 PM

To: <Karen\_k\_swope@dot.ca.gov>  
cc: "Britt Wilson" <britt\_wilson@morongo.org>  
Subject: Native American Consult-DOT/Swope; Big Bear Lake Dam Bridge,  
08-SBd-18PM 44.2/44.7

Thank you for contacting the Morongo Band of Mission Indians concerning cultural resource information relative to the above referenced project(s). Due to the high number of consultation requests the Tribe has been receiving, we are only able to respond via email.

The project is outside of the Tribe's current reservation boundaries but within an area that may be considered a traditional use area or one in which the Tribe has cultural ties (e.g. Cahuilla/Serrano territory). The Tribe, however, has no specific information regarding cultural resources in the project/area. The County coroner should be contacted if any human remains are found during construction activities. Also, the Tribe recommends that a qualified archaeologist be consulted if cultural resources are uncovered during construction and that the Tribe receive a copy of any cultural resources report subsequently issued on the project.

Thank you for the opportunity to comment on the project.

Sincerely,

Britt W. Wilson  
Project Manager & Cultural Resources Coordinator  
Planning & Economic Development Dept.  
Morongo Band of Mission Indians  
245 N. Murray Street, Suite C  
Banning, CA 92220  
(951) 755-5200  
Direct Line 755-5206  
Fax (951) 922-8146  
Cell Phone (951) 323-0822  
[Britt\\_Wilson@morongo.org](mailto:Britt_Wilson@morongo.org)

Wayta' Yawa'

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF TRANSPORTATION**

DISTRICT 8

ENVIRONMENTAL PLANNING, (MS 825)

464 WEST 4<sup>TH</sup> STREET, 6<sup>TH</sup> FLOOR

SAN BERNARDINO, CA 92401-1400

PHONE (909) 383-4042

FAX (909) 383-6494

TTY (909) 383-6300



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November 4, 2004

Mr. John Valenzuela  
Chairperson  
San Fernando Band of Mission Indians  
P.O. Box 221838  
Newhall, CA 91322

08-SBd-18-PM 44.2/44.7  
(KP 71.1/71.9)  
Big Bear Lake Dam Bridge  
Replacement Project  
EA 22700

Dear Mr. Valenzuela:

The California Department of Transportation (Department) is currently conducting environmental studies for a proposed project to replace the bridge over the Big Bear Lake Dam at the west end of the lake, approximately one mile west of the city limits of Big Bear Lake. Specifically, the project is located in San Bernardino County on the Big Bear Lake 7.5' U.S. Geological Survey quadrangle, T2N, R1W (SBBM) Section 22.

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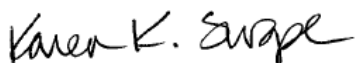
The studies include cultural resources investigations and consultation with interested parties. The Department is interested in receiving input from your community regarding any concerns related to the proposed project. Please inform us of any areas of cultural significance that we should take into account for the purpose of this project. This letter will be followed shortly with a telephone call to discuss any issues and/or comments that you may have. The Department requests to receive your comments by Monday, December 6, 2004.

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Mr. John Valenzuela  
November 4, 2004  
Page 2

If you have any questions or comments regarding the proposed project, please feel free to contact me at (909) 383-4042 or by email at [karen\\_k\\_swope@dot.ca.gov](mailto:karen_k_swope@dot.ca.gov). We look forward to your response.

Sincerely,



KAREN K. SWOPE, Ph.D.  
Associate Environmental Planner, Archaeologist  
District Native American Coordinator  
Environmental Support/Cultural Studies

Enclosures





# PHONE RECORD



**DATE:** January 19, 2005

**PERSON:** John Valenzuela

**TITLE:** Chairperson

**OF:** San Fernando Band of Mission Indians

**PHONE NUMBER:** (760)949-2103

**EA:** 22700

**PROJECT:** SBd-18 Replace Big Bear Dam Bridge

**RE:** Native American Consultation

12:05 p.m. I received a phone message from Mr. Valenzuela. He stated that the San Fernando Band of Mission Indians has no concerns regarding this project, or other projects in the area. He said that he would let others in that area handle Native American concerns in the area. He has updated information with Native American Heritage Commission (NAHC) so that future NAHC responses will better reflect the specific areas with which the Band is concerned. Specifically, he requested consultation in the Victorville Valley, Castaic, Piru, and San Fernando areas (previously, Mr. Valenzuela had requested consultation in the northern desert areas and Barstow, Hesperia, and Santa Clarita). He requested that he not be contacted for projects in the San Bernardino area, Los Angeles area, Riverside area, or Orange County area.

Karen Swope

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF TRANSPORTATION**

**DISTRICT 8**

**ENVIRONMENTAL PLANNING, (MS 825)**

464 WEST 4<sup>TH</sup> STREET, 6<sup>TH</sup> FLOOR

SAN BERNARDINO, CA 92401-1400

PHONE (909) 383-4042

FAX (909) 383-6494

TTY (909) 383-6300



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November 4, 2004

Mr. Deron Marquez  
Chairperson  
San Manuel Band of Mission Indians  
P.O. Box 226  
Patton, CA 92369

08-SBd-18-PM 44.2/44.7  
(KP 71.1/71.9)  
Big Bear Lake Dam Bridge  
Replacement Project  
EA 22700

Dear Mr. Marquez:

The California Department of Transportation (Department) is currently conducting environmental studies for a proposed project to replace the bridge over the Big Bear Lake Dam at the west end of the lake, approximately one mile west of the city limits of Big Bear Lake. Specifically, the project is located in San Bernardino County on the Big Bear Lake 7.5' U.S. Geological Survey quadrangle, T2N, R1W (SBBM) Section 22.

The project plans are to replace the bridge over Big Bear Dam and to correct small radius curves along the south shore of Big Bear Lake. This will facilitate completion of the dam spillway improvements, move traffic off the existing bridge, and improve approach roadway geometrics. Two project alternatives (see maps 1 and 2) are under consideration. The first (Alternative 4) consists of a new bridge across the lake approximately 200 meters northeast of dam. Curves in the approach along the southern shore will be straightened and improvements will be made along Highway 38. The second plan (Alternative 5) consists of a new bridge constructed across the canyon below the dam and realignment of the first curve east of the dam. Alternatives 1, 2, and 3 have been removed from consideration.

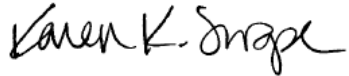
The studies include cultural resources investigations and consultation with interested parties. The Department is interested in receiving input from your community regarding any concerns related to the proposed project. Please inform us of any areas of cultural significance that we should take into account for the purpose of this project. This letter will be followed shortly with a telephone call to discuss any issues and/or comments that you may have. The Department requests to receive your comments by Monday, December 6, 2004.

*"Caltrans improves mobility across California"*

Mr. Deron Marquez  
November 4, 2004  
Page 2

If you have any questions or comments regarding the proposed project, please feel free to contact me at (909) 383-4042 or by email at [karen\\_k\\_swope@dot.ca.gov](mailto:karen_k_swope@dot.ca.gov). We look forward to your response.

Sincerely,



KAREN K. SWOPE, Ph.D.  
Associate Environmental Planner, Archaeologist  
District Native American Coordinator  
Environmental Support/Cultural Studies

Enclosures

Jan 20 05 12:44p

SMBMI

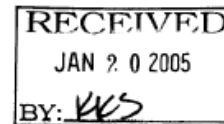
(909) 862-5152

p. 2

*San Manuel Band of Mission Indians*  
*Environmental Department*

January 20, 2005

Karen K. Swope, Ph.D.  
California Department of Transportation  
District 8  
Environmental Planning, (MS 825)  
464 West 4<sup>th</sup> Street, 6<sup>th</sup> Floor  
San Bernardino, CA 92401-1400



Re: 08-SBd-18-Pm 44.2/44.7 (KP 71.1/71.9)  
Big Bear Lake Dam Bridge  
Replacement Project  
EA 22700

Dear Karen Swope,

I would like to take this opportunity to thank you for complying with the requirements of Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR part 800. The San Manuel Band of Serrano Mission Indians shares your concern over the treatment of Native American artifacts including funerary objects, ceremonial items, and items of cultural patrimony.

The proposed project to replace the bridge over the Big Bear Lake Dam at the west end of the lake is in the area of highly sensitive known Serrano Cultural Resources, referred to as their "Creation Site". Hereby, we request that one of the San Manuel Band of Mission Indians (SMBMI) approved Native American Monitors be utilized throughout this project. A copy of the final reports upon completion would be greatly appreciated.

Attached is the SMBMI's approved list of Native American Monitors.

Should you have any questions, regarding this request, please do not hesitate to call me at (909) 864.8933, extension 2203.

Respectfully,

A handwritten signature in cursive script that reads "Ann Brierty".

Ann Brierty  
GIS Coordinator  
San Manuel Band of Mission Indians

Attachment

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## Appendix N Glossary of Terms

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<b>1602 Agreement</b>	An agreement pursuant to Section 1602 (formally section 1601) of the California Fish and Game Code between the Department of Fish and Game and a public agency, designed to protect the fish and wildlife values of a lake or stream. It is required whenever a proposed activity will substantially divert or obstruct the natural flow or changes the bed, channel, or bank of any river, stream, or lake designated by the Department of Fish and Game. A 1602 Agreement is also required if any material from the streambeds is used.
<b>4 (f) resources</b>	Publicly owned public park and recreation lands, wildlife and waterfowl refuges, and historic sites on or eligible for the National Register of Historic Places
<b>404 Permit</b>	In accordance with the Clean Water Act the Army Corps of Engineers requires this permit for all projects that involve dredging or filling of lakes, streams, tidelands, marshes, or low-lying areas behind dikes or levees, as well as for disposal of dredged materials to any waterway or ocean.
<b>AADT</b>	Average Annual Daily Traffic
<b>Abatement</b>	Mitigation of noise
<b>Abutment</b>	A stone, concrete, brick or timber structure supporting the end of a bridge span
<b>Advisory Council on Historic Preservation (ACHP)</b>	An independent federal agency that provides a forum for influencing federal policy, programs, and activities as they affect historic and archaeological resources in communities and on public lands nationwide.
<b>Alluvium</b>	Deposits resulting from the operations of water, including floodplains, lakes, rivers and fans at the foot of mountain slopes.
<b>Anchorage</b>	An assemblage of material designed to hold in correct position the anchor span of a cantilever bridge or the end of a suspension span cable.
<b>Attainment area</b>	An area that meets air quality standards.
<b>Attenuation</b>	The reduction of sound
<b>A-weighted sound levels</b>	Approximate way humans interpret sound
<b>Base floodplain elevation</b>	The area subject to flooding by the base flood. The base flood is the flood or tide having a one percent chance of being exceeded in any given year (100 year flood).
<b>Baseline</b>	Foundation or basis to use for comparison purposes.

<b>Basin Plan</b>	A specific plan for control of water quality within one of the nine hydrologic basins of the State under the regulation of a Water Quality Control Board
<b>Bedrock</b>	Solid rock that underlies all soil, sand, clay, gravel, and loose material on the earth's surface.
<b>Beneficial Use</b>	<p>A use of a natural water resource that enhances the social, economic, and environmental well-being of the user. Twenty-one beneficial uses are defined for the waters of California; they are listed and described below:</p> <p><b>Agricultural Supply (ARG)</b> – Includes crop, orchard, and pasture irrigation, stock watering support of vegetation for range grazing, and all uses in support of farming and ranching operations</p> <p><b>Preservation of Areas of Special Biological Significance (BIOL)</b> – Such areas include marine life refuges, ecological or environmental reserves or preserves, areas where kelp propagation and maintenance require special protection, and formally designated Areas of Special Biological Significance.</p> <p><b>Cold Freshwater Habitat (COLD)</b> – Provides a cold water habitat to sustain aquatic resources associated with a cold water environment.</p> <p><b>Ocean Commercial and Non-Fresh Water Sportfishing (COMM)</b> – Includes the commercial collection of fish and shellfish, including those collected for bait, plus sportfishing in the oceans, bays, estuaries, and similar non-fresh water areas.</p> <p><b>Fresh Water Replenishment (FRSH)</b> – Provides a source of fresh water for replenishment of inland lakes and streams of varying salinity.</p> <p><b>Ground Water Recharge (GWR)</b> – Includes natural or artificial recharge for future extraction for beneficial uses and to maintain salt balance or halt saltwater intrusion into freshwater aquifers.</p> <p><b>Industrial Service Supply (IND)</b> – Includes uses which do not depend primarily on water quality, such as mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil-well repressurization.</p> <p><b>Marine Habitat (MAR)</b> – Provides a water supply (and supports a vegetative habitat) for the maintenance of wildlife.</p> <p><b>Fish Migration (MIGR)</b> – Provides a migration route and temporary aquatic environment for anadromous or other fish species.</p> <p><b>Municipal and Domestic Supply (MUN)</b> – Includes usual uses in community or military water systems and domestic uses from individual water supply systems.</p>



**Navigation (NAV)** – Includes commercial and naval shipping.

**Hydroelectric Power Generation (POW)** – Is that supply used for hydropower generation.

**Industrial Process Supply (PROC)** – Includes process water supply and all uses related to the manufacturing of products.

**Preservation of Rare and Endangered Species (RARE)** – Provides an aquatic habitat necessary, at least in part, for the survival of certain species established as being rare and endangered species.

**Water-Contact Recreation (REC1)** – Includes all recreational uses involving actual body contact with water, such as swimming, wading, water-skiing, surfing, sport fishing, uses in therapeutic spas, and other uses where ingestion of water is reasonably possible.

**Non-Contact Water Recreation (REC2)** – Covers recreational uses which involve the presence of water but do not require contact with water, such as picnicking, sunbathing, hiking, beachcombing, camping, pleasure boating, tide pool and marine life study, hunting, and aesthetic enjoyment in conjunction with the above activities as well as sightseeing.

**Saline Water Habitat (SAL)** – Provides an inland saline water habitat for aquatic and wildlife resources.

**Shellfish Harvesting (SHEL)** – The collection of shellfish such as clam, oysters, abalone, shrimp, crab, and lobster for sport or commercial purposes.

**Fish Spawning (SPWN)** – Provides a high-quality aquatic habitat especially suitable for fish spawning.

**Warm Freshwater Habitat (WARM)** – Provides a warm water habitat to sustain aquatic resources associated with a warm water environment.

**Wildlife Habitat (WILD)** – Provides a water supply and vegetative habitat for the maintenance of wildlife.

**Bent**

A bridge support column founded on land.

**Best Management Practices (BMP)**

Structural devices that temporarily store or treat urban stormwater runoff to reduce flooding, remove pollutants, and provide other amenities.

**Borrow**

Earth brought in from another location to be used as fill material

**Bracing**

A system of tension or compression member that supports a truss

	or frame
<b>CAAA</b>	Federal Clean Air Act Amendments of 1990
<b>California Department of Fish and Game (CDFG)</b>	The state agency that manages California's fish, wildlife, and plant resources.
<b>Candidate species</b>	Any species of fish, wildlife, or plant which has been determined to be candidate for listing under Section 4 of the Endangered Species Act of 1973 (amended).
<b>Cantilever span</b>	A general term applying to a bridge having a superstructure of the cantilever type (supported at one end only).
<b>Cenozoic era</b>	Geologic time period consisting of the last 65 million years.
<b>CEQA</b>	California Environmental Quality Act of 1970
<b>CNPS</b>	California Native Plant Society. The California Native Plant Society produces an inventory of rare and endangered plants vascular plants of California. The inventory includes of rare and endangered plants vascular plants of California. The inventory includes five lists which categorize the degree of concern for the plant, List 1A, 1B, 2, 3, and 4. Plants in list 1A, 1B and 2 are protected under Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 of the California Endangered Species Act and are eligible for State.
<b>Cofferdam</b>	Watertight enclosure from which water is pumped to expose the bottom of a body of water and permit construction
<b>Column</b>	A supporting pillar
<b>Community cohesion</b>	The degree to which residents have a sense of belonging to their neighborhood, a level of commitment of the residents to the community, or a strong attachment to neighbors, groups and institutions, usually as a result of continued association over time.
<b>Cultural resources</b>	Archaeological and historic resources eligible for or listed on the National Register of historic Places that could potentially be affected by a given project. Cultural resources include buildings, sites, districts, structures, or objects having historical architectural, archaeological, cultural, or scientific importance.
<b>Cumulative impact</b>	<p>The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.</p> <p>(1) As defined by NEPA, impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.</p> <p>(2) As defined by CEQA, two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.</p>
<b>Curve radius</b>	Highway curves are established as circular arcs; the size of a particular curve is defined by the radius of the corresponding

	circle, normally defined to the centerline of the highway.
<b>Cut slope</b>	That portion of a slope that remains once soils have been removed during construction.
<b>dBA</b>	A sound level in decibels, measured with a sound level meter having metering characteristics and frequency weighting specified in American National Standard Specifications for sound level meters ANSI S1.4-1971. It is common to refer to numerical units of an A-weighted sound level as “dBA”.
<b>De minimis</b>	Latin for “of minimum importance”. It refers to something or a difference that is so small that analysis does not consider it as an impact. It is especially applicable to air quality analysis.
<b>Decibel (dB)</b>	A logarithmic scale measurement of noise
<b>Deck</b>	The portion of a bridge that provides direct support for vehicular and pedestrian traffic.
<b>Design Storm</b>	A rainfall event of specified size and return frequency (e.g., a storm that occurs only once every 2 years) that is used to calculate the runoff volume and peak discharge rate to a BMP.
<b>Detention Basin</b>	A basin, usually surrounded by a dike or levee, which holds stormwater runoff until the receiving waters are low enough for the contained water to be discharged.
<b>Dewatering</b>	The process of removing water from an area or element
<b>Diurnal</b>	Relating to species active during the daytime
<b>Draft Environmental Impact Statement (DEIS)</b>	A draft report that analyzes potential environmental effects of a proposed project in compliance with NEPA.
<b>Ecosystem</b>	The total dynamic complex of a community of organisms and its controlling environment functioning as a unit.
<b>Endangered species</b>	Any species of fish, wildlife, or plant which has been determined to be endangered under Section 4 of the Endangered Species Act of 1973 (amended). This definition is adopted from the USFWS, Section 7 regulations, 51 FR 19926.
<b>Endemic</b>	Plant or animal occurring only within a specific area and is generally limited in range by habitat characteristics
<b>Environmental justice</b>	Identifying and addressing disproportionately high and adverse human health or environmental effects of programs, policies and activities on minority and low-income populations.
<b>EPA</b>	United States Environmental Protection Agency
<b>Equivalent Sound Level (<math>L_{eq}</math>)</b>	A measure of sound energy over a period of time, or a sound level which, in a stated period of time, would contain the same acoustical energy as the time-varying sound during the same period.

<b>Erosion</b>	Process by which rock and earth are either worn away or transported, usually by water, wind or ice
<b>Falsework</b>	A temporary wooden or metal framework built to support without appreciable settlement and deformation the weight of a structure during the period of its construction.
<b>Fill</b>	Earth used to create embankments or to raise low-lying areas in order to bring them to grade.
<b>Fill slope</b>	A slope created from imported soils
<b>Final Environmental Impact Statement (FEIS)</b>	A report that analyzes potential environmental effects of an identified preferred alternative and responds to comments received on the DEIS.
<b>Fishery</b>	A stream capable of supporting angling activities. Usually streams which show evidence of spawning and nursery grounds.
<b>Floodplain</b>	The part of the ground surface inundated with water on a recurring basis, usually associated with the one percent recurrence interval (100-year) flow.
<b>Footing</b>	The enlarged, or spread-out, lower portion of a substructure, which distributes the structure load either to the earth or to supporting piles.
<b>Foundation</b>	The supporting material upon which the substructure portion of a bridge is placed.
<b>General plan</b>	A document that contains policies and action for implementation of the goals of a community.
<b>Girder</b>	A horizontal beam used as a main support for a structure.
<b>Grade</b>	A slope or gradual incline
<b>Groundwater</b>	Water beneath the earth's surface between saturated soil and rock that supplies wells and springs
<b>Groundwater</b>	Free water occurring in a zone of saturation below the ground surface
<b>Growth inducement</b>	The relationship between the proposed transportation project and growth within the project area
<b>Habitat</b>	The place or type of site where a plant or animal naturally or normally lives and grows.
<b>Haunched girder</b>	An arched beam used between support piers
<b>Holocene epoch</b>	last 11,000 years of the Earth's history -- the time since the end of the last major ice age
<b>Hydric Soil</b>	Soils that are saturated, flooded, or ponded long enough during the growing seasons to develop anaerobic conditions in the upper part (ACOE/EPA 1987 Manual).

<b>Hydro-mulch (or Hydroseeding)</b>	The general term for water-based slurries to be sprayed on cut and fill slopes for erosion control, commonly containing wood or synthetic fiber, fertilizer, seed, and a stabilizing emulsion.
<b>In lieu</b>	Instead of or in place of
<b>Landscape unit</b>	A geographically distinct portion of an area that has a particular visual character
<b>Lattice work</b>	A structure made of lattices that is used to secure another structure in place
<b>Leq</b>	A measure of the average noise level during a specified period of time
<b>Leq(h), dBA</b>	Equivalent or average noise level for the noisiest hour expressed in A-weighted decibels
<b>Level of Service (LOS)</b>	The operating level of an intersection or roadway segment can be described using the term Level of Service. Level of Service is a qualitative description of operation based on delay and maneuverability. It can range from "A" representing free flow conditions to "F" representing gridlock.
<b>Logarithmic Scale</b>	A measurement in which the ratio of successive intervals is not equal to 1 (which is typical for linear scales) but is some common factor larger than the previous interval (a typical ration is 10, so that the marks on the scale read: 1, 10, 100, 1000, 10000, etc., this is useful for plotting a graph of values that have a very large range)
<b>Maintenance area</b>	An area that had previously been designated a non-attainment area, but now meets applicable air quality standards.
<b>Mass concrete infilling</b>	In reference to the Big Bear Dam constructed in 1912, the dam was originally constructed as a series of thin concrete cylindrical shells. The cylindrical openings were filled with concrete to increase the ability of the dam to resist a major seismic even.
<b>Maximum Credible Earthquake (MCE)</b>	The largest earthquake reasonably capable of occurring based on current geological knowledge.
<b>Mean high-water mark</b>	Line on the shore reached by the plane of the mean (average) high water as observed from the "apparent shoreline" as indicated by physical markings, lines of vegetation, or changes in type of vegetation
<b>Mesic species</b>	Plants or wildlife requiring moderate amounts of moisture
<b>Metamorphic</b>	Pertaining to an alternation in composition, texture, or structure of rock masses caused by great heat of pressure.
<b>Mitigation</b>	Measures taken to minimize adverse environmental impacts. Mitigation could reduce the magnitude and extent of an impact from a level of significance to a level of insignificance.
<b>Montane</b>	Plants or animals living on the cool upland slopes below the timberline dominated by large coniferous trees
<b>National</b>	The United States' basic national charter for protection of the

<b>Environmental Policy Act (NEPA)</b>	environment. It establishes policy, sets goals, and provides means for carrying out the policy.
<b>National Historic Preservation Act of 1966</b>	The primary federal law pertaining to protection of cultural resources, referred to as Section 106.
<b>NAHC</b>	Native American Heritage Resource Commission
<b>National Register Eligible</b>	Cultural resources eligible for inclusion on the National Register of Historic Places
<b>Noise Abatement Criteria</b>	Noise level standards above which noise reducing actions should be considered
<b>Non-attainment area</b>	An area that does not meet air quality standards
<b>Noxious weed</b>	A plant that has been defined as a pest by law or regulation. Both California and the United States government maintain lists of plants that are considered threats to the well being of the state or the county.
<b>NPDES Construction Permit (National Pollutant Discharge Elimination System)</b>	A permit regulated by the Regional Water Quality Control Board required if more than 2 ha (5 acres) of original ground is graded. One condition of this permit is that the contractor submit a Storm Water Pollution Prevention Plan (SWPPP), which is similar to the Water Pollution Control Plan required by Caltrans Standard Specification 7-1.01G.
<b>OHWM</b>	The point on the shore of a body of water where sustained high water levels typically occur.
<b>Outfall</b>	The place where a sewer, drain, or stream discharges.
<b>Outlet works</b>	In reference to a dam, a system of valves and conduits that serves to regulate the discharge of water from the reservoir behind the dam to the downstream waterway below the dam.
<b>Pier</b>	A structure composed of stone, concrete, brick, steel or wood and built in shaft or block-like form to support the ends of the spans of a multi-span superstructure at an intermediate location between its abutments.
<b>Pile</b>	A heavy beam driven into the earth as a foundation or support for a structure
<b>Pile footings</b>	A structural foundation in which the supported structure rests on a group of stilt like "piles" (steel, concrete, timber, etc.) that distribute the load of the structure into the underlying soil or rock.
<b>PM<sub>10</sub></b>	Suspended particulate matter that is 10 microns or less in size.
<b>Point Source</b>	A source of pollution waste water that is emitted as a singular location, usually a conduit or drainage channel, at which both flow and quality can be determined.
<b>Post Mile (P.M.)</b>	A method of identifying a location on the State Highway System using miles. When combined with the county and route, identifies unique locations along any State Route in terms of miles.
<b>Poverty Level</b>	An income below \$14,630 for a family of three is considered below the poverty line based on U.S. Department of Health and Human Services Federal Poverty Guidelines (2001)

<b>Prime farmland</b>	Rural land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is available for these uses
<b>Retrofit strategy</b>	In reference to a seismic retrofit strategy of a highway bridge, describes a course of action or sequence of structural modifications and repairs sufficient to reinforce the bridge to a state that will render the structure reasonably likely to survive a specified level of seismic activity with minimal damage to the functionality of the bridge.
<b>Richter scale</b>	A logarithmic scale recording the severity of earthquakes. Because the scale is logarithmic, a 4.2 quake is ten times stronger than a 4.1 quake.
<b>Right-of-way</b>	Land dedicated to the transportation facility
<b>Riparian</b>	An aquatic or terrestrial ecosystem that is associated with bodies of water, such as streams, lakes, or wetlands, or is dependent upon the existence of perennial, intermittent, or ephemeral surface or subsurface water drainage. Riparian areas are usually characterized by dense vegetation and an abundance and diversity of wildlife
<b>Riparian Corridor</b>	A delineated area of riparian (moist soil) substrate, within whose boundaries may grow riparian vegetation, which in turn may support a riparian fauna.
<b>ROD</b>	Record of Decision explains why an alternative has been selected, summarizes mitigation and summarizes efforts made to minimize environmental impacts.
<b>Runoff</b>	The storm water which is not absorbed into the ground
<b>Santa Ana Regional Water Quality control Board (SARWQCB)</b>	Develop and enforces water quality objectives and implementation plans which will best protect the beneficial uses of the State's waters, recognizing local differences in climate, topography, geology and hydrology within the Santa Ana Water Basin
<b>Sedimentary rock</b>	Rock resulting from the consolidation of sediment
<b>Sedimentation Basin</b>	An area where water is detained for a sufficient time to allow the settling of a specified size of sediment particles.
<b>Silt</b>	A sedimentary material consisting of fine mineral particles in size between sand and clay.
<b>South Coast Air Quality Management District</b>	A regional regulatory agency with the primary responsibility for improving air quality in the South Coast Air Basin
<b>Special status species</b>	Any species of fish, wildlife, or plant that is officially listed as rare, threatened, or endangered or candidate for rare, threatened, or endangered species listing under the state or federal Endangered Species Acts.



<b>Spread footings</b>	A structural foundation in which the supported structure rests on a "footing" (typically concrete) that acts as a stiff block to distribute the load of the structure into the underlying soil or rock.
<b>State Implementation Plan (SIP)</b>	A plan for attaining national ambient air quality standards required by the Clean Air Act
<b>State office of Historic Preservation</b>	The state agency that assists private citizens, private institutions, local governments, and state and federal agencies in the identification, evaluation, protection, and enhancement of properties significant in California history and archaeology; also responsible for reviewing federal undertakings that affect cultural resources on or eligible for the National Register of Historic Places.
<b>Storm Water Management Plan (SWMP)</b>	A document that describes a program to reduce the discharge of pollutants associated with the storm water drainage systems that serve highways and highway-related properties, facilities, and activities.
<b>Substructure</b>	The abutments, piers, grillage or other constructions built to support the span or spans of bridge.
<b>Superstructure</b>	The entire portion of the bridge structure which primarily receives and supports highway, railway or other traffic loads.
<b>Surface runoff</b>	Water that runs off of streets and land and enters a body of water
<b>Take</b>	To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct (as defined in Section 3 of the Endangered Species Act)
<b>Terrestrial</b>	Relating to plants or animals growing from or living on the land
<b>Three-phase signal system</b>	A traffic signal installation that operates to accommodate three major traffic movements in three separate time intervals (in contrast to a two-phase or other number of phases system)
<b>Transects</b>	A linear path traversed during scientific studies.
<b>Transportation Demand Management (TDM)</b>	Strategies or techniques to decrease single occupant vehicle traffic on streets by encouraging the use of carpools, transit ridership, bicycle travel, and telecommuting.
<b>Transportation Management Plan</b>	A plan to manage traffic during construction of projects to reduce congestion.
<b>Transportation System Management (TSM)</b>	Strategies or techniques to increase the capacity of a transportation system through relatively low-cost improvements.
<b>Trestle</b>	A framework consisting of vertical, slanted supports and horizontal crosspieces supporting a bridge
<b>Tributary watercourse</b>	A stream feeding a larger stream or a lake
<b>U.S. Army Corps of Engineers (ACOE)</b>	Federal agency with jurisdiction over waters of the U.S.

<b>U.S. Environmental Protection Agency (EPA)</b>	The federal agency responsible for maintaining environmental quality, including air quality, noise, and hazardous waste management.
<b>U.S. Fish and Wildlife Service (USFWS)</b>	The federal agency that administers the federal Endangered Species Act and is involved in protection of fish and wildlife habitat, including wetland areas.
<b>Vascular plants Viewshed</b>	Any plant with stem, leaf and/or root system All areas where physical changes associated with the proposed project can be seen
<b>Visual dominance</b>	The contrast between a project and their setting described in terms of vegetation, landform, and structural changes.
<b>Visual intactness</b>	Visual integrity of the visual environment and its freedom from encroaching elements
<b>Visual unity</b>	Visual coherence and compositional harmony of the landscape when considered as a whole
<b>Visual vividness</b>	Visual power or memorability of landscape components as they combine in striking and distinctive patterns
<b>Watershed</b>	That part of the earth's surface from which storm water runoff flows to a single point.
<b>Watershed</b>	A ridge of high land dividing two areas that are drained by different water systems
<b>Waterway</b>	The available width for the passage of water beneath a bridge.
<b>Wetlands</b>	According to regulation of the U.S. Army Corps of Engineers, wetlands are areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and similar areas and are subject to protection under EO 11990 and Section 404 of the Clean Water Act.
<b>Wildlife corridor</b>	A large patch of habitat connecting two or more larger areas of habitat, which is essentially free of physical barriers such as fences, walls and developed areas